

MINICAM

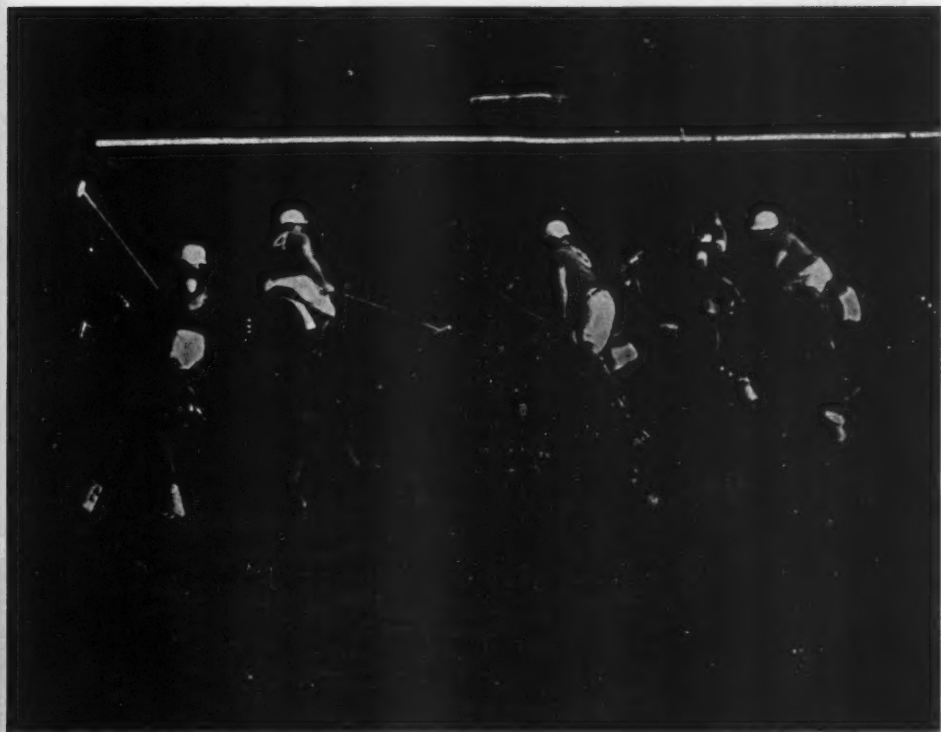
OCT.
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SO YOU'VE BOUGHT A NEW CAMERA
... HOW TO USE DUFAYCOLOR FILM
THE SECRET OF SOLARIZATION ...
"SHOOTING" WAR ... \$\$\$ IN COLLEGE
... AND MANY OTHER NEW FEATURES

The Miniature Camera Monthly — For EVERY CAMERA User



"JACK IN PULPIT". A deep woodland shot taken in late afternoon. Zeiss camera, Maximar B, Agfa Plenachrome film, 2 seconds at f22. For time exposures outdoors, choose a windless day or use a screen to protect the subject from stray breezes. See the article "Photographing Flowers", in this issue. By Stanley T. Clough.



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AGFA BROVIRA PAPER

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OCTOBER, 1939

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MONTHLY**
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Sirs:

Around these parts, minicam fans are referred to as "Snap Happy." What do you think of this term?

HENRY L. NILES.

Brooklyn, N. Y.

Sirs:

I always thought *MINICAM Magazine* to be very reliable and to carry only well-chosen articles by authors who know their facts. After reading the first article in the September issue by John Hutchins on "What is Photogenic," I begin to have my doubts.

Any dictionary will give the definition of photogenic as, quote "produced by light, or producing light." Then to have Mr. Hutchins comment that Miss Georgia Carroll is photogenic," is rather disheartening.

Mr. Hutchins may comment that photogenic is proper in the form he has used it, because of common usage. I disagree with him, and he will find many of our modern photographers will also, as evidenced by a great number of letters received by *Life* magazine,



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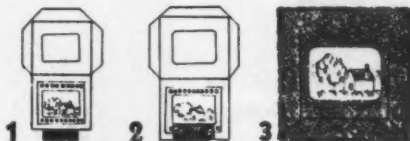
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PER
DOZEN.....**50c**



Place film over masked opening. Fold up gummed bottom flap to anchor film in position.

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criticizing them for their use of the word in the same way. HAROLD G. SMITH, D.D.S. Kokomo, Ind.

Lensman Smith is correct in quoting the classical definition of "photogenic." According to modern usage, however, to be "photogenic" is to possess "camera appeal." How do other lensfans feel about this new word? The second of the series by John Hutchins is, "Are You Photogenic?" (see page 20).—Ed.

Life-Size Covers

Sirs:

Since MINICAM readers generally are a year or two ahead of the field, they will be interested in how the New York Fair's "World of Tomorrow" visualizes the magazine covers of the future.



"Living Magazine Covers" is

the name of the show, as shown by the out-

door snapshot. The sky being overcast, the exposure was 1/100th of a second, at f8, on Agfa Superpan Press film.

Within the side-show, the going was none too easy because of limited illumination, but my Detrola camera's f3.5 lens came through with a bang. I shot wide open at 1/25th of a second. Beautiful and scantily-clad models posed in the life-size imitations of magazine covers.



The show gave my camera a number of beautiful models to feed on—a diet it doesn't have every day, you can be sure.

Perhaps if I read enough of MINICAM and take enough pictures I may eventually be able to take a picture that is good enough for a magazine cover, who knows?

St. Louis, Mo.

HARVEY LISTER.

SUPERIOR PAN

As Versatile as
Your Miniature
Camera



J. W. VOGDES

THE speed and wide latitude of this "all-purpose" film help you get a whole roll of good negatives. Focus a frame in your enlarger and you will see the long scale gradation and fine grain size that make a beautiful print. The next time you load your miniature camera, try a roll of this versatile film, Du Pont Superior Pan.

DU PONT FILM MANUFACTURING CORP., INC. 9 ROCKEFELLER PLAZA, NEW YORK, N. Y.

"Least Liked Ad"

Sirs:

Almost since George Eastman began using paper backing on his roll film, the ad of the *American School of Photography* has been unchanged. Oh, not completely and solidly unchanged, for once every two blue moons the fetchin' gal disappears and only her simple looking photographer looks at us. I also seem to recall that some years back the gal took off her bathing suit—between issues of course—and put on a more or less new one. Mainly, I judge, because the old one was model 1911.

Now honestly, is it logical to judge that a school of photography has but one illustration to use, and that not too good? Variety, variety, for heaven's sake. Even the same wording—"Photography for pleasure or profit." Well it's no pleasure to see that ad month after month in every magazine you pick up. Stagnant, positively stagnant.

I must be the average amateur because like everybody else I know, I use a Kodak and wish I had a Contax: and if I am the average, then all of the others who are average feel just as I do. Please *Mr. American School of Photography*, let's get a little variety.

R. W. RICHARDSON.

Aurora, Ill.

The little 14 line advertisement which Reader Richardson likes least has been worth a fortune to *American School of Photography*. It is re-

peated everywhere without change, year in and year out, not because *American School* dislikes variety, but because the advertisement continues to pull business. Possibly for MINICAM readers *American School* will offer some variety.—Ed.

"Best Liked Ad"

Sirs:

The advertisement I like best is the Fink-Roselieve ad, page 11, in September MINICAM.

It tells the price, the film capacity, the liquid capacity, how it can be loaded, in fact, everything I would want to know about the tank. It also states ten reasons why I would find the tank convenient and why I should buy it.

If I were buying it, I would not need to ask the dealer anything except perhaps how to adjust it and check the points stated in the advertisement. Another good feature is that the advertisement is illustrated, showing a picture of this tank.

S. BAMBURAK.

Vauxhall, N. J.

Consensus of opinion showed readers preferred the F-R advertisement 1st; Perflex 2nd. Readers were particularly "down" on advertisements that failed to give precise, detailed information, along with prices, with E. Lantz getting the most of the rub on this latter point. MINICAM will be glad to receive further letters from readers constructively criticizing advertisements, and will continue to pay \$5 for each one published here.—Ed.



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NEW Albert

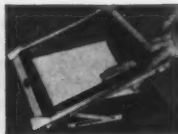
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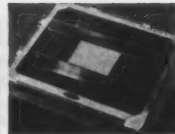


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City & State.....

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231 S. Green Street, Chicago



NEWS CAMERA

By A. J. EZICKSON

THE war is on, and the news photographers abroad have already started their pictures flowing into this country. But in spite of the intensity of the conflict, you should not expect any close-up actions of foe battling foe. The governments involved in the big scrap will see to it that none of these will find the light of day, at least, while the war lasts. Camera censorship existed in the First World War, but this time it is even more rigid than ever before.

Already there is a plethora of scenes behind the lines: soldiers guarding buildings and bridges, citizens evacuating cities, building

trenches in the public parks, Premiers and Generals arriving at and departing from conferences, mothers and girls kissing their sons and sweethearts goodbye. But that's about as far as the war pictures go, except those taken at the front by the warring powers' own official photographers, and intended mostly for propaganda purposes.

My, how those government news-snapping pets must work overtime turning out picture after picture of large batches of prisoners being marched away from the front; soldiers (always smiling) moving up to the front lines, towns and villages captured (but showing no mark where their own serial bombs made craters). Actually, a radiophoto was received today by way of the German approval department showing a number of Polish prisoners, their faces wreathed in smiles, giving the Heil Hitler salute, and even one of them waving a Swastika. A bit overdone, I should say, for readers to swallow. But that's how it goes. The public in neutral countries can only see that sort of stuff from the front—or nothing.

No news photographer, other than the one accredited by the government, is allowed anywhere near the front. If an enterprising free lance strays within earshot of the front lines, he would be shot.

Even before the conflict got under way,

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Lenses: Simmon, Bauch & Lomb Tessars, Dallmeyer. Send for folder G

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various governments clamped down. In England, no pictures were allowed of ships, whether they be the Grey Dogs of War or the merchant vessels of peace. In France, every negative had to be turned over to the government for sharp scrutiny, and many a valuable hour was lost before the Red Tape department stamped a final OK. Despite all restrictions, picture after picture clogged the radio and cable, and as many as 25 to 30 cablephotos and radiophotos daily were rushed to one picture agency here at a cost of \$60 to \$90 each! Many U. S. photographers are being rushed abroad to augment the overworked staffs there.

World War I produced its share of picture scoops. One morning, the editor of International News Photos was casually sorting his mail, when out of a letter from England fell a postcard snapshot—the sinking of the British battleship Audacious! No name on the back of the picture, or on the letter. Just the picture, and nothing more!

The editor's heart thumped a loud tattoo. He looked again. He could scarcely believe his eyes. The one big NEWS picture! Well, here's the payoff, and it was some payoff for the syndicate's coffers. One New York newspaper paid the syndicate \$5,000 for the first rights to publication. Another paid \$2,500 for second rights. And so down the line . . . close to \$20,000 in sales for one little snapshot!

The syndicate later made valiant efforts to trace the sender. At first the British government said the pic was a fraud, but later agreed to its authenticity. Another outstanding photograph of the World War was the sinking of the German battleship Bleucher. It was made by a sailor on a British ship, but, like the other anonymous sender, he was afraid to claim it for his own, afraid lest he be courtmartialed for taking pictures while on duty!

In the undeclared Sino-Japanese war you must remember that startling shot of the Chinese baby alone on the North Station platform in Shanghai following the terrific bombardment by Japanese planes in which hundreds were killed. Or those startling U. S. S. Panay pictures, which were reproduced in MINICAM (February, 1938). And remember that ace shot from Spain showing a Loyalist soldier in the act of falling just as he was struck by an enemy bullet.

This war, too, will have its outstanding shot. It may be a while before it makes its appearance. But don't get impatient, and think that the news photographer abroad is loafing. He's very much on the job, and it's no sinecure, especially when bombs take as much toll behind the lines as in the thick of battle.

The lensman in Europe must learn how to conserve film and flash bulbs. And no matter what he snaps, he's always up against that wartime bogey man—THE CENSOR!



Give Spectators a THRILL!

The "stay-at-home" spectators who watch The Big Game via your movies or projected stills will get a real thrill out of your pictures when you show them on a Da-Lite Glass-Beaded screen. Its greater light reflective qualities make every shot appear brighter, sharper, clearer and more real. The Da-Lite Glass-Beaded screen is different from any other. Its tiny beads are applied by Da-Lite's exclusive process that assures maximum reflection of light without sparkle or glare. The surface stays white longer than any other white surface. The model shown above ranging in price from \$2.00* to \$5.00* may be set up on a table or hung up against a wall. Other styles include hanging screens from \$7.50* up and the popular Da-Lite Challenger with tripod pivotally attached to the case, from \$12.50* up. Write for literature and name of nearest dealer.

**Prices slightly higher on Pacific coast.*



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Dept. 10M, 2723 N. Crawford Ave., Chicago, Ill.

Shopper's Guide



The November issue of MINICAM, on sale at all newsstands November 1st, will include a complete descriptive buyer's guide of all popular cameras and photographic equipment, including price, special features, special uses, size, weight, all descriptive features, and a picture of each.

The November issue will be larger than any previous issue of MINICAM.

Order your copy now from your news dealer and be sure of getting a copy.

MINICAM



THE ILLITERATES OF THE FUTURE, according to one observer, will be those who can't use a camera—magazines without pix no doubt will be called "Illiterate Digests."

NEW DEFINITION: Resolving power—a weak sort of mental exercise that tries to tell us we don't need that new gadgetcam but which is pleasantly ineffectual, particularly while the svelte feel of the box still lingers in our fingers.

And ANOTHER DEFINITION: Frosted Glass—a prevaricating piece of siliceous material that shows masterpieces on the back of a camera, seemingly no matter where you point the lens.

BROTHERS UNDER THE SKIN: one step color prints, plastic lenses, three dimen-

and now, it's the new

ELKAY ROTO REEL

FILM PACK and CUT FILM

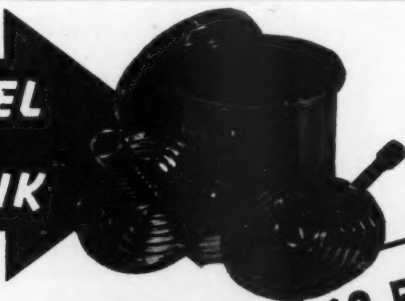
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in the EYE!

New G-E flash bulbs STOP ACTION



G-E MAZDA Photoflood Lamps let you see your lighting effects before you shoot. Give you brilliant, whiter light that helps get crisp, clear pictures indoors. Used with new super type film G-E Photofloods permit snapshots with box cameras. Good for dozens of shots. Grand for home movies. Four handy sizes. No. 1, 20c—No. 2, 40c—No. R-2 (has reflector), \$1.10—No. 4, \$1.60.



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Foil-filled:
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Wire-filled:
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... filled with
Aluminum for
**BRIGHTER, WHITER
LIGHT**



Easier than ever to get "prize" pictures because of the amazing uniformity in flash timing of the new G-E Photoflash lamps! You *know* you'll hit the flash peak every time. You use faster shutter speeds with more confidence. And at higher shutter speeds*, that extra punch of light in G-E Nos. 16, 7, 11 and 21 is a big help to better negatives.

The new G-E Flash bulbs are safer, too, especially on close-ups, since the new G-E safety jacketed bulbs act like shatterproof glass. You're missing something, if you haven't tried a G-E Flash bulb lately!

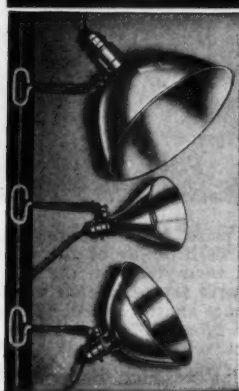
*For ultra high speed shots, with focal-plane synchronization, get new G-E Focal-Plane lamps Nos. 31 and 30. Give uniform densities across the negative.

GENERAL  ELECTRIC
MAZDA PHOTOFLASH LAMPS



The life-size, life-like images, which you can project with this powerful, versatile equipment, will make your favorite hobby—miniature photography—more interesting than ever. The SVE Tri-Purpose Projector shows single frame and double frame film strips (horizontal or vertical) and 2"x2" glass slides or Kodaslide Ready-Mounts. A patented heat absorbing filter protects the film emulsion against heat and scratching. Model CC shown above, 100 watts, with lamp, lens, slide carrier and carrying case \$35.00. Write for folder "Show It Tonight!" and name of dealer.

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Dept. 10M, 100 E. Ohio Street Chicago, Ill.



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No. 250
11" Reflector for
No. 2 Floodbulb.

\$2.50

No. 50
5 1/2" Reflector for
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BUY THESE from your dealer

Use No. 250 for broadlighting, No. 50 for point or highlighting and No. 20 for cross lighting to fill in shadows and you'll be well equipped for indoor photography. Insist on VICTOR Units for best results!

WRITE FOR FOLDER • **J. H. SMITH & SONS CORP.**
1039 Celfax St. Griffith, Ind.



sional prints, prosperity. If you're looking for the corners these things are just around, maybe you'd better wait awhile.

WHAT TO EXPECT NEXT: An exposure meter with radium dial for reading in the dark.

HOW WOULD YOU DO IT? A friend who files 35mm. negs in strips of sixes had one strip with three shots of burning fireworks next to three of burlesque queens. What heading to file under—"combustion?"

OTHER USES:

Hand fans (painted black)—dodgers.

Projection screens—reflectors for portraiture.

Tripods—for making tepees for Junior.

FORGOTTEN COLOR in photography are the pastel shades in cameras of a decade or so ago. Milady apparently just wasn't interested.

GREATEST SHOCK of our young photographic career came when noted pictorialist dug into his coat pocket, brought forth some naked negatives, blew off the gnrr's, and thumbed through them Jacks-or-better style. Not recommended unless you make paper negatives or bromoils.

CAMERA SHOP SIGN: "Gifts for remembrance—tanks for the memory!"

LIBEL TO BE FUNNY:

There was a young photog from Goosement,
Who without the slightest inducement,
Would snap a poor sitter
In the midst of a jitter,
And make pictures all night for abusement.

IF YOU'RE GOING to one of the fairs—we just got back some Kodachrome shots of fireworks and they are your money's worth in color! Best stop is f4.5 though f3.5 or f5.6 works. Just set the shutter on bulb and follow the rockets. Letting several pile up on one negative produces really startling effects.

IN THE LEXICOGRAPHER'S LAIR:

Leica—pronounced as "like-a."

PPD—pronounced "pair-a-fenol-teen dia-meen."

Scheiner—pronounced "shiner."

Graflex—pronounced "graff-lex."

Leudi—pronounced "lude-ee."

Zeiss—pronounced "zise."

Gevaert—pronounced "gay-vert."

Goertz—pronounced "gairtz."

Perutz—pronounced "payrootz."

(O.K., you linguists, jump on and ride).

COMMON RECOMMENDATION for filling up a not quite full bottle of developer is to drop in marbles to bring the liquid level up to the top of the bottle. An embarrassing difficulty lies in the fact that most of us have given up marbles, what with photography and all. Suggestion: get a sack full of clean, quartz pebbles the next time you're near the beach.

So you've bought



A NEW CAMERA!



**Learn How to Take Good Pictures By
Mastering These Fundamentals For Beginners**

By LUKE HAMMER

Illustrated by the Author

THE simplest and most fascinating way to learn camera work is by going through a few practice exercises—like a pianist running off the scales on his piano.

Take your camera, preferably unloaded, and proceed as if you are to photograph a pretty girl. How far shall you be from her? Fifty feet? At that distance, looking through your viewfinder, you see something like Fig. 1 on the next page. The figure of the girl is dwarfed to insignificance. The camera is not far enough away to picture the building and it is too far away to picture the girl.

Twelve feet (Fig. 2) is the distance for which the newsman automatically sets his camera when taking a full-length figure. For a medium view, come to six feet (Fig. 3). For a portrait, set the lens for three feet (Fig. 4). This is the minimum distance for which most cameras can be focused.

Background. When concentrating on a subject, whether it is a beautiful girl or a house and lot, we may become preoccupied with this center of interest and are likely to overlook the rest of the details in the picture. After developing it, we often are surprised to see a tree seeming to grow out of the subject's head. Or the background may be the same tone as the subject, preventing the subject from standing out with sufficient contrast.

Thus we learn to use a light-colored background if the subject is dark in tone. If the subject is light, select a dark background. In



either case, the background should be neutral in effect.

Conglomerate background (Fig. 5). Confusing or distracting details in a background spoil thousands of otherwise excellent snapshots. As walls and buildings cannot be moved into suitable positions, the wise photographer scouts around for suitable backgrounds first and then rounds up his subjects, bringing them to his backgrounds.

In the great outdoors, you are likely to see many interesting subjects miles away from suitable backgrounds. Always present are the sky and the ground. By lowering the camera and shooting upward, a blank white sky background (see Fig. 6) is obtained. The problem is lowering the camera or getting the subject on an elevation high enough to eliminate the sky line, tops of buildings or other distracting details.

The sky is a versatile background either light or dark, as the cameraman dictates. Fig. 7 is the same as Fig. 6 except for the use of a yellow filter (K2) on the lens. The filter caused the bright blue of the sky to reproduce

darker, letting the white clouds show up.

Illustrating another device for background control, Figs. 8 and 9 were taken under the same conditions except that the background is in focus in Fig. 8 and out of focus in Fig. 9.

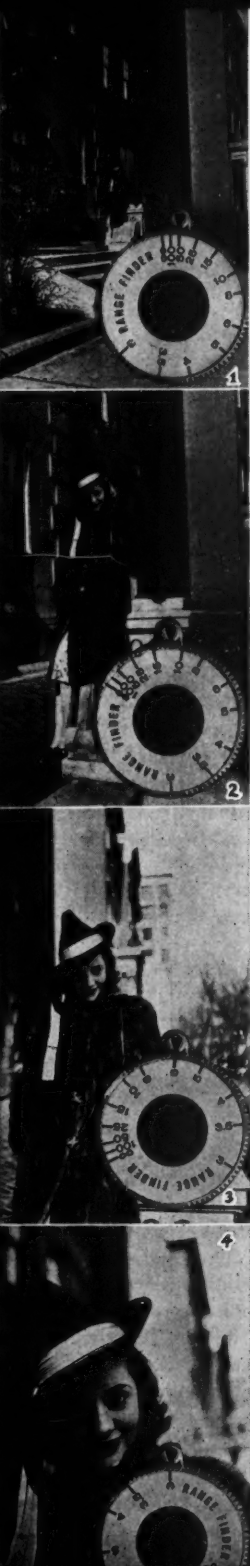
When a background has an unobtrusive design, it may be kept in focus as in Fig. 8. It also should be kept in focus if, by means of its symbols or inscriptions, it adds something to a portrait, landscape or other composition. Most of the time, however, when arranging a picture, it is not possible to exclude foliage, building and other superfluous details and the only thing to do is to throw the background out of focus. This is accomplished by one or both of two methods—by increasing the distance between subject and background and by increasing the size of the lens opening. When shooting "wide open," compensate for the increased lens aperture by increasing the shutter speed accordingly.

Foreground. Everything said about backgrounds also applies to foregrounds. If photographing a girl reading a magazine it is easy to decide on a suitable camera distance and background. But if our foreground is not well arranged, the result may be something like Fig. 10, in which there is too much foreground (the magazine) and not enough of the girl.

For Fig. 11, the camera was moved around to the side until the girl attained more of the center of attention which is her due.

Camera angle. There are dozens of possible angles for every subject. Consider all of these. Walk around a subject and see how it looks from different points of view—from one side or another, from low down on the ground or from the elevation of a handy ladder, tree or hilltop.

Hold your palms at the side of your face like blinders to limit your angle of view to about 45°, which is about what the average camera lens takes in. To visualize the size of this angle, draw a line perpendicular to another. This creates a







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90° angle. A line through the center will give you two angles of 45° each.

Camera angle is the device for emphasis *par excellence*. It proceeds from the axiom that the closest thing to the camera will be relatively the largest in the picture.

Photograph a subject from one side (Fig. 12), and her raised elbow will be the dominant item. The result is a picture not of a girl, but of an elbow. When a subject's arm or leg is raised it should not be the limb closest to the camera. Moving the camera to the other side would accomplish the same effect.

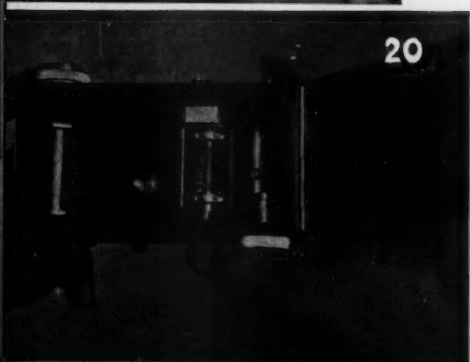
Camera angle, theoretically can be varied 180° or in a complete half circle around a subject. This gives the cameraman a lot of territory to look over, especially if the subject is large, as a house or a landscape.



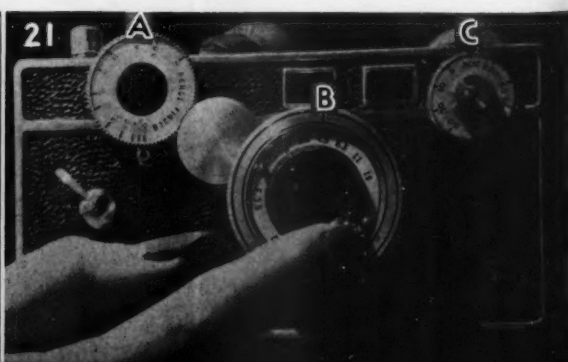
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Camera altitude gives you another 180° of possible camera angles all the way from directly below a subject to directly overhead. Poor choice of camera altitude is illustrated in Fig. 13, where the camera was lowered until the subject's knees dominated the picture just as her elbow dominated Fig. 12.

The center of interest in a portrait should be eyes, nose, or perhaps lips. Dominating a picture like Fig. 10 should be the subject's face. In a landscape, if a certain road, car or house is to be emphasized, move toward it so that the selected detail is the *nearest* one to the camera.



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Direction of lighting. Outdoor lighting is taken so much for granted that snapshooters sometimes fire away blissfully unaware of whether the light comes from one direction or another. The details we overlook, however, are the ones which pop up when prints are made and the unhappily amazed camera toter can only say, "Why, I never noticed that!"

The ability to notice everything comes from knowing what to look for. See Fig. 14, for example. In the days of slow film and slower lenses, the only way to get enough light for a 1/25th of a second snapshot was by standing the subject in direct sunlight, the cameraman being careful to keep the sun over his shoulder. This resulted in harshly lighted faces, the flat, frontal lighting depriving the face of any semblance of roundness or depth. Landscapes and other subjects also suffered from this type of lighting.

Forty-five degree lighting (Fig 16). Better roundness or modelling for all types of subjects is achieved when the sun is at a 45° angle, or midway between front lighting and side lighting. The longer shadows give better effect of modelling.

The nose, the hourglass of the face, throws the shadow which shows the direction from which the light is coming. For portraits in bright sunlight, however, 45° lighting tends to be too contrasty; there is too great a range of tone between the light and dark areas and, as a result, the light side of the face tends to be chalky white while the shadows are dense, opaque black.

Back lighting (Fig. 15) produces some of the most interesting and tricky effects. Two points must be watched out for. The sun must be kept from shining directly into the camera lens. Use a lens shade or hold a hat so that a shadow falls on the lens. Exposure must be increased. Back lighted (Fig. 15), a subject requires at least four times (2 full stops) as much exposure as when frontlighted (Fig. 14). When using an exposure meter, bring it to within 12 inches of the face so the meter will register the face's illumination without taking in any direct sunlight.

To play safe, when photographing any subject, whether a face or a steamship, move around until the light is at a 45° angle. You will notice this to be especially effective with portraits when the sun is weak, as in the late afternoon or when it is slightly diffused by thin clouds.



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When the sunlight is thoroughly diffused or the subject is in the shadow, the result is like Fig. 17, good for portraits but too flat for most other subjects.

When you have decided your *camera distance* from the subject in feet, when you have found a satisfactory *background*, when you have checked the *foreground*, and finally when you have decided on *camera angle* and checked the lighting, you may think you are ready to press the button and snap the picture. If you do, you may get something like Fig. 18.

Expression, in the last analysis, often makes or breaks a picture. If a subject is tired, indifferent, or unenthusiastic, it is not possible to get an exciting picture.

Talk to your subject, put her at ease by getting her to talk about people and things she knows and likes until at the thought of Paris, swimming, or fried chicken, as the case may be, her face will light up and the result will be not Fig. 18, but Fig. 19.

Now let us go back and start at the beginning again, once more running over the camera adjustments as a pianist might run over his musical scales.

All cameras depend on the same fundamental adjustments. Fig. 21 shows how they are arranged on the Argus model C. Before snapping a picture, the three adjustments to be made are:

(A) Setting for the desired distance in feet from subject to camera. The *focusing dial* or knob "A" can be seen set at 4 feet in Fig. 21.

(B) Setting for the correct aperture or "F" opening depending on the amount of light on the subject. The *diaphragm ring* "B" can be set at f4.5.

(C) Setting for the desired shutter speed, depending on whether the subject is stationary or moving. The *shutter dial* "C" can be seen set at 1/300th of a second in Fig. 21.

The position of the controls on various cameras may differ as do the arrangement of levers on various automobiles. But just as a good driver can learn to run any car, so can a camera user readily operate any camera once he has mastered one.

The **diaphragm**. To watch it in operation, set your camera on "T" or "Time". Or on "B", indicating "Bulb". Some cameras have both of these settings, but many have just one.

When set for "T", one pressure of the shutter release opens the shutter which then remains open until the release is pressed again. When set for "B", the shutter remains open only as long as pressure is retained on the release. Lifting the finger lets the shutter close.

With the camera back open as in Fig. 20, and the shutter open, move the *diaphragm ring* and note how this adjusts the size of the opening. Set at f3.5, the lens is at its maximum opening or aperture; it is wide open.

Move the diaphragm ring and stop down to f4.5, to f6.3, to f11 and to f18. At f18, the lens is at its minimum aperture. The greater the amount of light on the camera subject, the smaller the size of the lens opening required.

The diaphragm ring is calibrated in f numbers, referred to as *apertures*, *openings* or *stops*. These terms are synonymous. The larger the number, the smaller the size of the opening. The f18 aperture is smaller and admits less light, therefore, than the f11 aperture, as can be seen by holding the opened camera up to the light. Settings between numbers can be used. But it is better to concern yourself only with the apertures engraved on which ever camera you happen to be using. For example, if f16 is called for, you can use either f11 or f18.

Shutter Speeds. With the diaphragm wide open, work the shutter at various shutter speeds to accustom yourself to the sound and appearance of a shutter operating at 1/300th, 1/100th, 1/25th of a second, etc.

Focusing. Box cameras and others of the fixed focus type are permanently set at about 13 feet. Semi-fixed focus cameras like the Argus A have two adjustments, one for near subjects (10 to 15 ft.) and the other adjustment for subjects 15 feet or more from the camera.

(Page 73, please)



THIS POOR FISH (left) was unfortunate enough to be caught during a Sunday afternoon picnic given by members of the cast of the current Broadway success, **HELLZAPOPPIN'**. Immediately, the Thespians proceeded to demonstrate their ability to out-face the fish, with the results seen below.

FISH ? FACE ?



GEORGE MANN, one of the featured stars of the cast, snapped the fish faces with his Leica, using Plus X film, and an exposure of 1/200th of a second at f2. The shots were made in the shade of several large trees. Other party ideas, if your guests catch no fish to make faces at, might be to imitate a "Roosevelt Smile," a "Mussolini Stance," or a "Hitler Sneer," depending on your particular preference and political leanings.



P H O -

CREATOR of the "collar ad" type (Fig. 10) of masculine handsomeness, Arthur William Brown is a photogenic type himself. Critical, as are all artists, he does not object to being photographed or put on the griddle to have his own features criticised and analyzed. FIG. 2

By JOHN HUTCHINS, A. R. P. S.

Photographs by the Author

THE pendulum of popular fancy swings again. Today the cry is, "Thumbs down," on the pretty boy type, "Give us rugged masculinity."

As a photographer, you should have an exact mental picture of just what constitutes an ideally photogenic man's face.

Cousin George wants his picture taken "just as is"! Actually, he doesn't want anything of the kind. He expects that clever lighting and choice of camera angles will make him appear to have some of the characteristics of an ideally photogenic face.

A man's features can be less harmonious than a woman's and still be considered handsome. But just how much lee-way is allowed for the photogenic male features? First, let's consider Fig. 2.

1. The nose *must* be straight. However—many handsomely photogenic men possess a nose that is really larger than it should be from a purely idealistic standpoint. The larger nose adds strength.

Mr. Arthur William Brown (Fig. 2) is considered a handsome man. One of America's leading illustrators, for many years he has been drawing the popular American conception of masculine attractiveness such as Fig. 10.



ANALYZING the photograph on the next page, the following good and bad features can be seen:

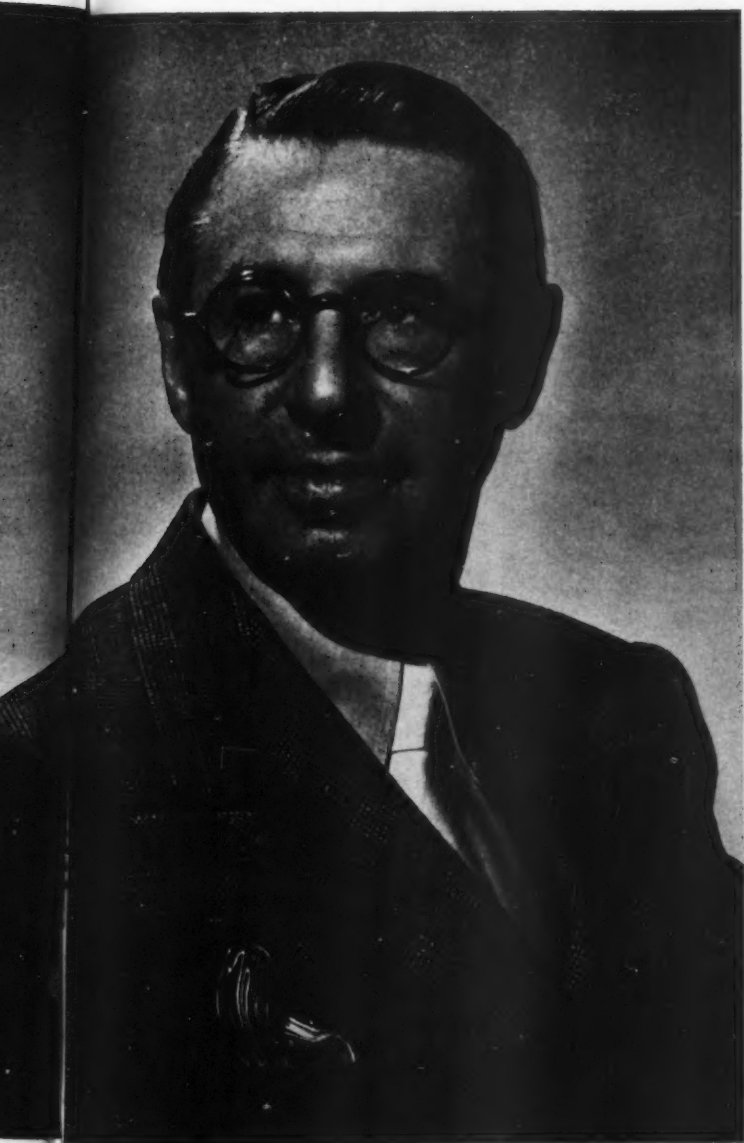
1. Frontal protuberances well defined, creating a rectangular forehead.
2. Eyes too deep set.
3. Nose a little large.
4. Full mouth and rather large lower lip.
5. Square cut chin.

FIG. 1

Observing the artist himself, (Fig. 2), Mr. Brown's nose is somewhat large and his eyes are a bit too deep set. He is not as handsome as the "collar ad" types he draws. The pretty girl's nose cannot be even slightly too large.

2. If a man's eyes are a little bit too deep set, it only adds to his masculinity.

- T O G E N I C ?



GREEK CHARIOTEER. Not photogenic by modern standards are the weak mouth and rounded chin. FIG. 3



ANTIQUE ROMAN (above). Angularity makes his features photogenic and easy to photograph. FIG. 4

OVAL FACED youth of the Louis XIV period (below). Handsome in his day, but too pretty to photograph well. FIG. 5



Deep set eyes add nothing to the attractiveness of a woman.

Now let us consider Fig. 8.

3. At the side points of the lower jaw bone, a man's face may be wider than the perfect face should be. Many of our handsome leading men have this slightly too-wide jaw defect. This disproportionate feature only adds to the popular conception of rugged masculinity.

4. Observe (Fig. 8) the extreme squareness of the facial planes. There is a definite leanness to the entire face. Any presence of fleshiness between the bone protuberances would weaken the general skull-like effect. The ladies of Henry V's court might perhaps find this face gaunt and somewhat starved looking. The dandies of the court of Louis XIV might deplore its lack of roundness.



SKETCH illustrating the four features which make the photograph (Fig. 8) almost perfect photogenically.

1. The forehead is rectangular in shape. There is a slight concavity in the middle of the forehead.
2. The nose is straight.
3. The cheek bones are prominent, forming a triangular plane.
4. The chin is square cut.
 - a. This indentation is a trifle too deep.
 - b. The lower lip is full.

5. A well shaped forehead is an absolute *must* for the male photogenic face. (Fig. 8) Note the protuberances of the frontal planes of the forehead. There is a flat depression between these bones, in the very middle of the forehead. You will see how this forms a rectangle, falling away nicely at the temples.

6. The mouth is well shaped and the lower lip is inclined to be on the full side. There seems to be a general trend toward a full lower lip. Clark Gable and Charles Boyer both have this type of lower lip. Thin lips, unfortunately, give a suggestion of



A WELL SHAPED head may be badly presented by a high camera angle. Observe how the upper part of the head is completely out of proportion with the chin. Notice the distortion of the hands. A spot light on the floor illuminated the face, the entire side of which has been flattened out by incorrect lighting. Compare with the pictures of the same subject on the next page.

A PHOTOGENIC TYPE (right). Slightly disproportionate features, such as size of nose or chin, would prevent a woman's being beautiful, but not a man's being handsome. Defender X-r Pan cut film, $\frac{1}{2}$ second at f/11. Lighting: One 500 Watt spot, main light source at 45 degree angle position. 1000 Watt diffused broad for the shadow side. One 500 Watt boom-spot directly behind the sitter. One 1000 Watt spot 15 feet behind and to the left of the sitter. Fink-Roselieve Hollywood spot shooting from the floor on to the background in order to give separation to the head. FIG. 8



POOR LIGHTING can flatten out the planes of an almost perfect photogenic face. The head was not back lighted. A single 1000 watt flood-light was used a little to the right of the camera. The same lens and position of the figure, as in Fig. 8, above. Notice the definite lack of modelling and the all over gray look to this print, caused by plain floodlighting. (Below.) Fig. 9



repression of personality and lack of frankness.

7. Natural looking eye brows, of the not too thin variety are in evidence here. It seems that eye brows for men are running a little thicker these days.

8. The eyes are a trifle too deep set for absolute ease in lighting. However, this adds to the strength of the face.

9. The eyes are of good size. Small eyes are a definite hindrance at all times and for all types, except occasionally in character studies.

10. As far as ears are concerned, you can make your

own choice. Almost any shape or kind of ears will go, as long as they are not in any way grotesque.

11. Very few male motion picture stars are blond. If the features are regular, blond hair very often adds a somewhat feminine touch to the face. Notice that the hair follows the general contours of the skull and completes a pleasing outline emphasizing a well-shaped head.

12. If you will now study this face (Fig. 8) as a whole, you will notice that the facial construction is built up of square and rectangular planes. The Italians might call such a face "infamata" or hungry looking, because of the hollows in the cheeks. This face is easy to photograph *because* of these hollows. The oval face that has rounded out hollows is much more difficult to photograph, because light easily illuminates the fleshy parts between the bone prominences and gives an expression of "all over roundness," instead of high lights and luminous shadows.

A photogenic face is one that will pho-

tograph well. But what is handsome depends partly on current ideas and styles. All through the ages, there has been a constant vacillation of public opinion as to what constitutes a handsome man.

Notice in the sketch (Fig. 3) the feminine mouth, and weak rounded chin of this young Greek Charioteer. The Hollywood studios would "throw him out" as not photogenic. If you have to photograph a man of this type don't emphasize the somewhat weak mouth with make-up. Try and get the chin up a bit also in order to strengthen the jaw line.

Fig. 4 illustrates the stronger Roman face. The squareness of his facial planes would be quite acceptable today. The heroes of the early classic arena were represented by an exaggerated squareness and angularity.

During the reign of Louis XIV, male attractiveness was exemplified by oval faced court dandies. The youth in Fig. 5 would not be selected for a hero's role by a modern casting director. The mouth is too pretty, the face is oval, and the bone construction is not sharply defined.

During the past fifteen years, American women have been enjoying a "new freedom." This equality with men in business and particularly athletic sports has actually created a new type of feminine beauty. The picture of Miss Georgia Carroll (Sept. MINICAM, page 15) demonstrated the somewhat all over angularity of this popular photogenic model's face. With the swing in popular preference toward a slightly stronger woman's face, it is not extraordinary to see why the public now demands more "rugged masculinity", toward the Roman type illustrated in Fig. 4.



WELL-DEFINED planes of the face characterize the "collar ad" type of masculine face. FIG. 10

Measure Exposure by INCIDENT LIGHT

New method doubles the range of
any exposure meter in dim light

By F. C. BOBIER*



MEASURE REFLECTED light when the illumination is good. Point the meter at the subject. (Above) FIG. 1
MEASURE INCIDENT light when illumination is poor. Direct the meter half way between the camera and the light source. (Below) FIG. 2



A different method. Remove the directional hood. Measure average incident light falling on the subject.

WHEN an exposure meter is pointed at a subject and a reading taken, the meter measures the amount of light being reflected by the subject.

When not enough light is reflected to give a meter indication, the meter can be pointed toward the light source to measure the *incident* light, that is, the intensity of the light source.

Fig. 1 shows the General Electric exposure meter as it is used to measure reflected light. The movable hood restricts the angle of light being measured. When the light intensity is so low that the meter no longer reads the reflected light, the hood is removed and the meter used as shown in Fig. 2.

The reading thus obtained is divided by a factor which, in the case of the G. E. meter is ten. If the reading taken as shown in Fig. 2 is 40 light units, for example, 40 is divided by 10. The result, 4, therefore, is the figure to be used in calculating the exposure.

This method can be used to measure the light falling on any surface and coming from all directions. With the hood removed, the meter is no longer confined to the measurement of light coming from a limited angle of view.

The next question is where to point the meter. It is impossible to write instructions which will work in every case and leave no doubt in the mind of the user as to the exact reading which should be used. However, pointing the meter at a point

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* General Electric Co.

SOLARIZATION PROCESS

For Unique and Sensational Effects

By HENRY HOLMES SMITH

With Author's Illustrations

THE celebrated French photographer, Man Ray, once discarded a partly-developed print which appeared to be incorrectly exposed. The piece of paper lay around on the darkroom floor until it caught the photographer's eye.

SOLARIZATION DIRECT on paper, obtained by making an exposure from a normal negative. When one-third developed, the print was rinsed and exposed for 3 seconds at a distance of 5 feet from a 25 watt lamp, then developed again in a developer to which 50 per cent water was added. Note the accentuated outlines which the process obtains.
FIG. 1

In daylight, the image looked as if it had been outlined by hand. Ever curious, Man Ray dropped the print into the hypo, fixed, washed and dried it. The result was startling—neither fish nor fowl, neither negative nor positive. As a transparency it looked like Fig. 1.

A solarized image is one that has been reversed by overexposing until the negative becomes positive, light areas becoming dark and dark areas becoming light.

The technique to be described here sometimes is called "pseudo-solarization" to distinguish it from "solarization by means of great overexposure." The latter method has no practical value, while pseudo-solarization (which we hereafter shall abbreviate to solarization) is an effective method for obtaining startling, grotesque or sensational effects.

Solarization is obtainable either while developing the negative or while developing a print from a conventional negative.

The negative or the print is exposed as usual, in the camera or enlarger, depending on which method is used. Development is partly carried out. Then a white light is turned on for a few minutes (for the second exposure), then turned off, and development completed.

Development in the light



PRINT, by contact, from Fig. 1, gives this outline or etching effect. Solarization may be used to produce startling posters. FIG. 2

of an unsafe safelight also produces the same effect, and is called the Sabatier Effect.

Correct exposure and development

times for the particular effect desired are determined by means of test strips. Exposure and development times for the illustrations shown here are given as a guide

The films used were Agfa Finopan and Eastman Portrait Panchromatic, selected because of availability. Development of the negatives took place in hangers in DK-50, or D72 or Agfa 103. After partial development, each hanger was removed from the tank, rinsed briefly in cool water, and exposed to a red safelight—safe, that is, for supersensitive orthochromatic films but capable of fogging panchromatic films. A Wratten No. 2 safelight was used.

Negatives or prints to be solarized receive more than double the usual length of development. Full development is given, the emulsion is exposed to a light, and then full development is given again.

For negatives, the first development may be anywhere from two-thirds to full development time. The second development may be from 1-1/5 to 1 1/2 the normal full development time. If the manufacturer's recommended development time for a film is 15 minutes, the first development will be 10 to 15 minutes, and the second, 12 to 18 minutes.

The first development time is from 2/5th to 1/2 of the total development time for the process. The first development should be for a brilliant negative without blocking up of light areas.

For paper prints, the first development is carried out for the full normal time. This would be two minutes with most enlarging papers, or 45 seconds with contact paper. The second development is 1/2 to 2/3 of this time, or about 1 minute with enlarging paper and about 25 seconds with contact paper.

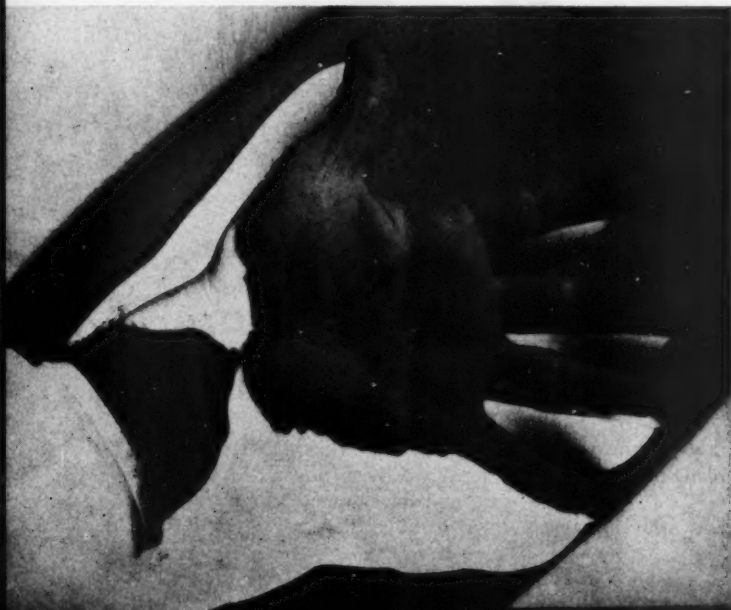
The critical part of the process is not the development times, but the second or solarizing exposure time. The effect of varying exposure times is illustrated in Figs. 8, 9, 10 and 11.

Following this second exposure, the films were placed again in the tank of DK-50 and allowed to continue development for a time equivalent to that required for complete development of the original negative.

Fixing, washing and drying are done as for any other negative.

For photographers who work with miniature cameras, solarization may be carried out on enlarged negatives from positives made from their original negatives.

For those who work with larger negative sizes, successful solarization may be done using positive contact prints on contrast-grades of contact papers such as Convira Extra-hard or Azo No. 5, which



SOLARIZED NEGATIVE. The positive print (left), has white "shadows" and delicate gradations of tone in the palm of the hand. FIG. 3

SOLARIZED ENLARGEMENT (right hand page). Finopan film, Leica camera. After development, the enlargement was exposed to a white light for 1 3/4 minutes and then developed again. Note the characteristic *Mackie* lines along the arms and right side of the subject. For full technical data, see article. FIG. 4

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CONTACT PRINTING. Azo contrast No. 4, normal development in D72, re-exposure for solarization effect to 60-watt light 10 inches from print for three seconds. Redevelopment until surface of paper blackened completely, creating a paper negative. Reproduction shown here is contact print from this paper negative. FIG. 5

ORDINARY PRINT (below). It cannot compare in effectiveness with the solarized print of the same subject shown above. FIG. 6

in turn are used to print from as paper negatives. Illustrations of this method are Figs. 5 and 7.

Fig. 3 illustrates the effect obtained by solarization of a negative. The film was Agfa Finopan, developed in DK-50, for two-thirds of normal development time, exposed to a red safelight (Wratten Series 2) for 15 seconds, 8 inches from the light. The second development was the same length as the first.

The nude figure study, Fig. 4, was made by solarizing an enlargement. The original photograph was taken with a Leica camera and Agfa Finopan film. Lights were two No.

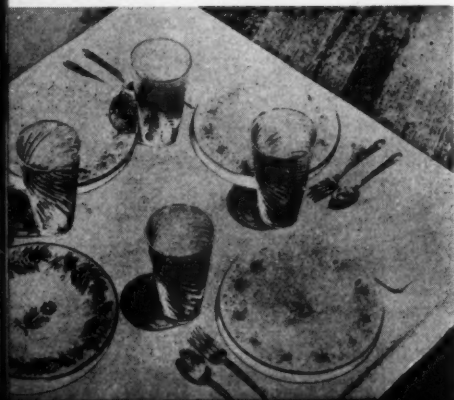
GLASSWARE and metal objects give the effect of hand drawn etchings. Same method as Fig. 5, the solarization effect being obtained direct on contact printing paper from a normal negative. FIG. 7



1 photofloods, one on the background and one on the figure, plus a 1000 watt Mazda, G40, in a reflector beside the camera. Normal exposure, according to Weston meter was given, $f/6.3$, $1/25$ th of a second.

The negative, exposed and developed as usual, made an 8 x 10 enlargement on Kodabrom Hard, contrast No. 4. The enlargement was developed in D-72 diluted 1 to 4, then exposed for solarization effect to an 8 candlepower amber glass bulb, $1\frac{1}{4}$ minutes at 8 inches.

Development then was continued until



PRINTS from solarized negatives showing the effect of varying the length of the second exposure, Agfa Convira medium paper.

FIG. 8. (Upper left.) Second exposure, 10 seconds to red safelight (Wratten series 2) at 6 inches. No effect visible.

FIG. 9. (Upper right.) 20 Seconds, Wratten series 2 safelight at 6 inches. Slight effect of second exposure.

FIG. 10. (Lower left.) 30 Seconds, Wratten series 2 safelight at 6 inches.

FIG. 11. (Lower right.) Exposed to white light of 60 watt bulb, 30 seconds at 6 feet. Complete reversal, and dark line caused by greatly increased second exposure.



paper blackened over its entire surface. The result was as black as Fig. 1, and from it the contact print was made, resulting in Fig. 4.

Figs. 5 and 7 are examples of the effects obtained by solarizing contact prints. These were taken with a 4x5 camera, exposed and developed as usual.

The contact prints were made on Azo No. 4, developed in D-72 and re-exposed for solarization effect to a 60 watt light, 10 inches from the print for 4 seconds, then redeveloped until surface of paper blackened completely, creating the paper negative from which were made the final prints shown in Figs. 5 and 7.

Figs. 8, 9, 10 and 11 illustrate the

effect of varying the second exposure when solarizing negatives. No solarization effect is noticeable in Fig. 8. It can be seen, however, in the eye and hair of the subject in Fig 9, the second exposure having been doubled.

The effect of the second exposure is clearly shown in Fig. 10, in which the second exposure was three times that in Fig. 8.

In Fig. 11 complete reversal was obtained by use of a 60 watt bulb for the second exposure.

These negatives (Figs. 8, 9, 10 and 11) were developed in DK-50 at 65 degrees, followed by variations of the second ex-

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WAR FRONT PHOTOGRAPHY

With censorship clamped down on all photographers in war-torn Europe, China is a last refuge for adventurous lensmen.

By D. MacNEILL DAVIES

With Author's Illustrations

WARTIME China is interesting, but far from a bed of roses. Sleeping on boards or the bare ground, malaria and dysentery, the slimmest food rations, ducking bombings, and walking miles, sometimes



with a pack on your back, are all part of the adventures of a news photographer in China. It's exciting, with more scares than pictures, but it means seeing history in the making.

I use a Rolleiflex Automatic and think it was a wise choice for the job. It is easy to handle and fast, two absolute requisites. Its only disadvantage is its bulk, but that is offset by the comparatively good negative size. One thing I like a lot about a reflex camera is the fact that it can be held away from the body or head and still the photographer can see in the ground glass what he is getting.

Most of the cameramen use Leicas or Contaxes. Super Ikon-tas are also in the running. The drawback to 35 millimeter cameras in wartime, however, is that the negatives need careful processing which isn't often to be had.

Agfa Superpan Press is the answer to a cameraman's prayer. Its speed is the biggest surprise, but the comparatively fine grain and good tone values draw praise, too. I smashed my Kalart flash-gun on the way to the front, but the Agfa film is fast enough to make interiors if there is reasonable outside light and some window space. Incidentally, I have been using Wabash Superflash No. 1, a good flashbulb which is small enough to pack well when on an assignment and is ample source of light when using a fast film.

Lifa yellow and green filters go along in the carryall, with a Weston Junior exposure meter and a lens shade. Before leaving the United States I bought a Nikor aluminum developing tank and spool. In it I use the standard

(Page 75, please)

GUERRILLAS out of uniform fighting at close quarters a few miles from the front. Unposed pictures are a necessity in war photography.



A HOMELESS father and his daughter sleep on a city sidewalk after a wild flight from Japanese bombings.



GUERRILLAS in uniform. Army heads dislike having photographers or reporters too near the front, since their death means trouble for the Foreign Office.



REFUGEE in a foreign-controlled relief camp.



PHOTOGRAPHING

**Make closeups and work for texture
and form in blossoms indoors or out**

IN any meadow, garden, or florist's shop are the new models you've been looking for. With their curves, textures, and forms, flowers offer a never-ending procession of subject matter.

They can be photographed in their natural habitat. Brought indoors, they can be photographed individually or made a part of a composition. Used as accessories, their forms and grace lend beauty and completeness.

Almost any camera can be used for flower photography. A reflecting camera or one with a ground glass back, however, makes focusing and composition easier. The means used to make the flower image large on the film depends upon the camera. A telephoto lens can be used on cameras with the interchangeable lens feature, a double extension bellows on a bellows-type camera, or close-up attachments such as the Contameter for the Contax camera and proxar lenses which are made to fit a number of cameras. Use of a "portrait" lens permits the average camera to come within 2 or 2½ feet.

A tripod is a "must," since long exposures will be used when the lens is stopped down.

Texture and form are the things to work for in flower photography. These are easier to obtain indoors where lighting and backgrounds can be controlled. Fragile flowers call for high key treatment, with light backgrounds. Back lighting is recommended to bring out delicate details in the surface and form of leaves and petals.

Panchromatic film is preferable in the photography of flowers of delicate and varied hues. For full correction a light or

medium yellow filter is necessary. A deep yellow filter will give better rendering when darker-hued flowers are photographed. Red filters darken blue and green, yellow filters darken blue, and green filters darken red. Unusual effects may be obtained if a red filter is used when white or yellow blossoms are photographed. The red filter renders green as a very dark grey, emphasizing the lighter-colored blossoms.

The sky is an excellent background when a filter such as a medium yellow or light red is used. Clouds often add to the drama of a flower picture made against the sky. Without a filter the sky will be overexposed, printing a plain, ugly white without clouds.

As a rule large single flowers photograph better than a mass of small ones because the image is bigger and sharper details can be obtained. While some excellent shots of cherry blossoms have been made, such pictures are usually fuzzy masses. Roses, poppies, sunflowers, peonies, asters, hollyhocks, and chrysanthemums are among the best flower models.

Pictures of whole beds or gardens are seldom as attractive as those depicting a single bouquet or an individual flower. Too many flowers or too great a variety confuse the eye and fail to focus attention upon any one part of the photograph. As in other types of photography each flower picture should emphasize one idea or central theme, all attention being directed to this.

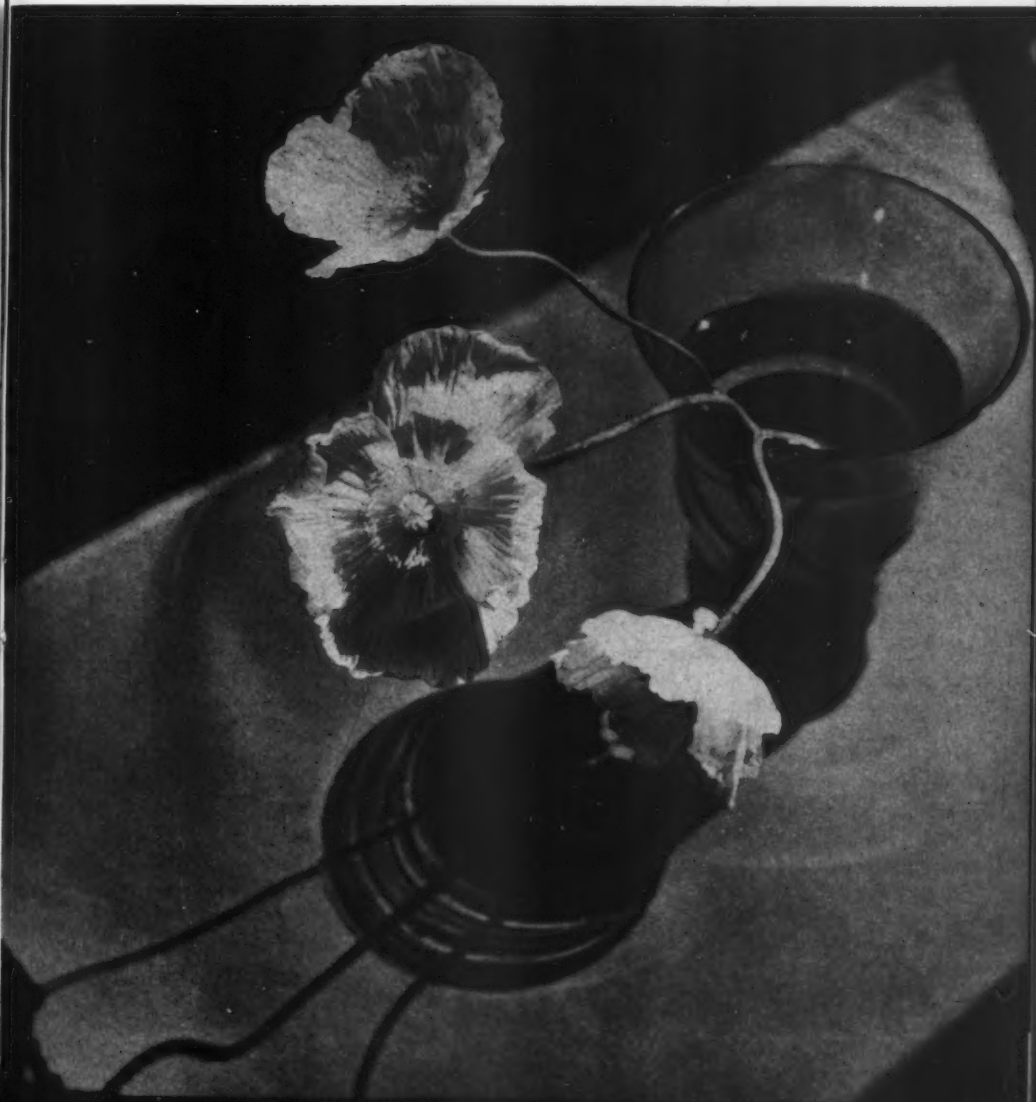
Background should be chosen carefully. Many flower photographers use two screens or portable backgrounds, a light one made of cardboard or a seamless cloth

FLOWERS

By HENRY H. GRAHAM

POPPIES. The texture and forms of flowers are more easily photographed in the studio where lighting and background can be controlled. By Guida.

FIG. 1





COMPARE THESE TWO poppy snapshots. The eye finds charm in a scene like the one below by looking at one or two blossoms at a time. The camera, however, has to get up close to obtain the same result. Note how much more effective the closeup (left) is. Rolleiflex camera, $f/16$, $1/50$ th of a second.

By Sally Pepper.
FILES. 2 and 3

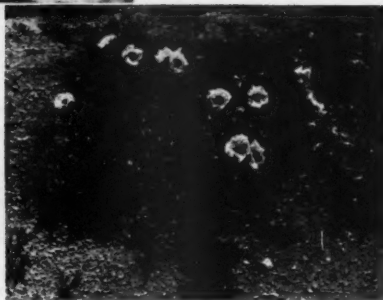
for use when the flowers photographed are dark, and a dark one of velvet or felt for light-colored blossoms. The appropriate background is chosen for each shot. The screens are made by tacking the cloth tautly to a frame. A picture frame is very suitable for this purpose.

The importance of the background cannot be too strongly emphasized. Fully half of the poor flower pictures are due to this factor alone. Grass and trees make poor backgrounds when working outdoors because they form a blurred, spotty, disturbing element in the picture. If no portable background is available, clear away leaves, grass and debris, making the bare earth the background, or hold your camera low and use the sky.

Unless your interest in botany carries you away and you want to record the habitat, get as close to the plant as possible when working outdoors.

When photographing large flowers such as poppies or tulips try to show the insides of the blossoms. The veining of the petals and the position of the anthers and pistils can add to the interest of the picture. Fruit blossoms look best when photographed from below. It is a mistake, however, to include the whole tree. A single branch, or at most two branches, should be selected and pictured against a filtered sky. The photographer should have as many blossoms as possible facing the camera so that, after enlargement, one may look into them.

To obtain sufficient depth of focus when working close to the flower it is necessary to

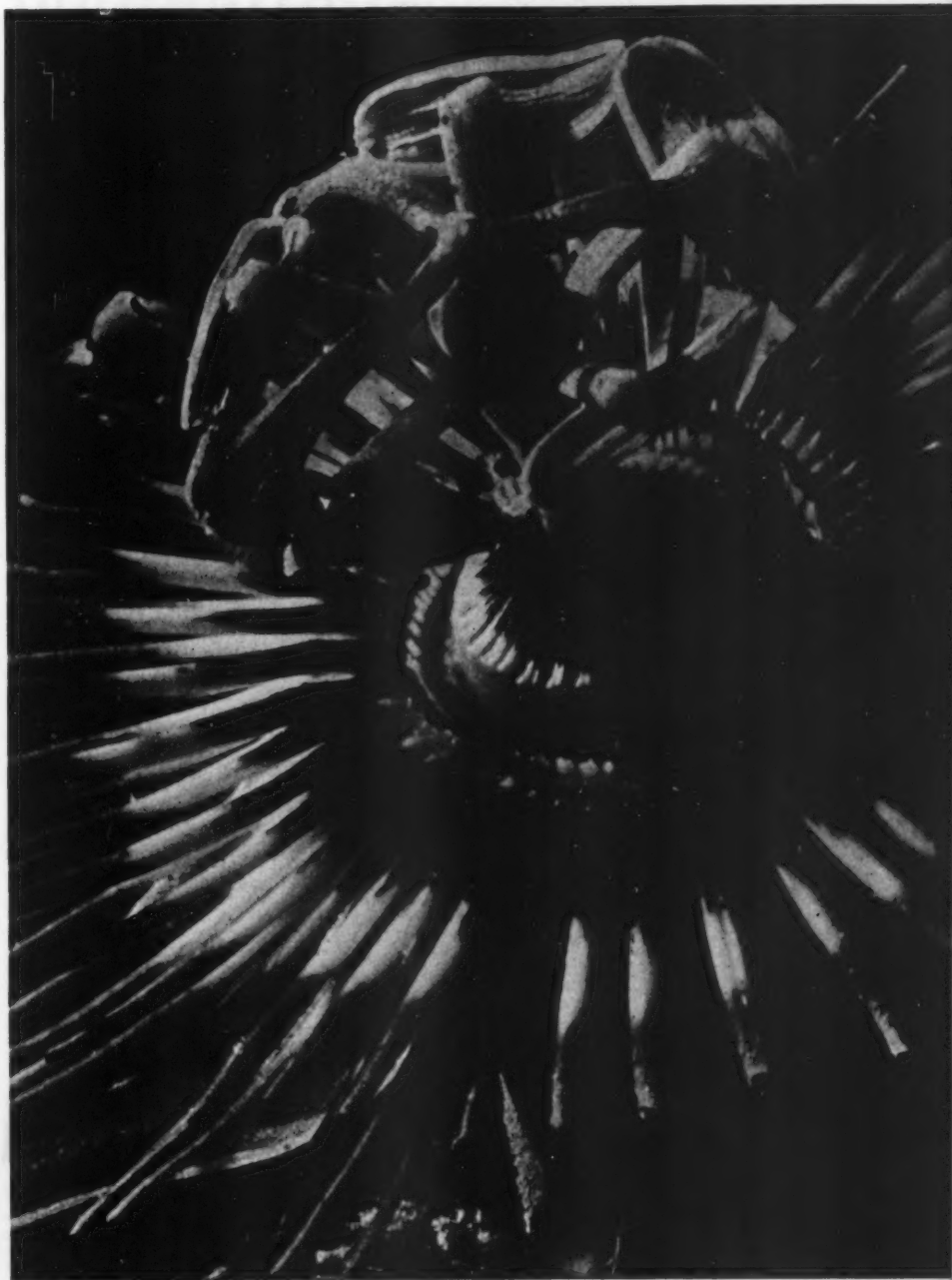


stop down—even to $f/64$. Indoors with artificial lighting this is usually possible. Outdoors stopping down is difficult because of the woodland habitats of many plants and because of havoc wrought by the slightest breeze during a time exposure. A speed of $1/100$ of a second is necessary to photograph breeze-tossed flowers which necessitates opening up the lens resulting in a loss in the depth of focus. Some times muslin tacked on frames can be arranged as a windbreak or the stems can be wired with florist's wire.

In wiring care must be taken not to damage the flowers. Push one end of the wire into the ground and carefully spiral the rest around the stem in spring fashion. Another method is to break off the flower stem at its base and gently work the wire up through the center of the stem. An inch of wire is left below the bottom to be inserted in the soil among the plant's leaves.

STOP DOWN for definition in closeups such as this of the stamens and pistils
of the African Passion Flower. By Charles Breijer.

FIG. 4



ANYONE CAN PHOTOGRAPH



THE IMMEMORIAL essence of desirable femininity is captured on film in this portrait which is characteristic of the sensational work of Irwin Blumenfeld.

A PRETTY GIRL

"But how many photographers know how to endow this obvious symbol with the breath-taking quality of art?"

By ALEXANDER KING

Photographs from Irwin Blumenfeld

LET me admit at once that it is quite impossible to write of Blumenfeld's work dispassionately. Since seeing his pictures, I am more than ever convinced that capable photographers have practically no competition whatever.

Allow me to consider the particular quality of beauty which lives in these magical pieces of paper which Irwin Blumenfeld gave me to illustrate this piece about him. His pictures must undoubtedly be approached with an almost lyrical perception for the exquisite intention behind his work.

In the beginning, when man was like a pod which bursts and sends its seeds upon the wind, he fulfilled himself in blind, uncritical submission to the incalculable impulses of nature. Traveling along dark roads of a still-bubbling, unfinished universe, he mindlessly squirted the richness of his life without thought or affection, a blind tool in the preoccupied hands of nature.

He left his primitive tracks in the dreadful, blood-soaked swamps of time and finally emerged into the light . . . as Orpheus weeping for seven months for his one and only love, the sacred bride of his heart, the irreplaceable Eurydice.

That's how it all began. Love and the symbols of love became personalized, individualized and inexplicably precious.

For thousands of years poets, painters



PHOTOGRAPH of Rodin's statue, "The Kiss."

and musicians conspired to raise the simple philoprogenitive instincts of man to the heights of a religion. That they have succeeded can best be witnessed by the cult for beauty, which, debased and perverted as it may be, depends for its success on tangible symbols which the heart of man can assimilate.

In short, "The Naked Olympia" by Manet, "The Mona Lisa" by Leonardo da Vinci, "The Winged Victory of Samothrace" have in their time and in our time stood for an ecstatic representation of the human appetite for beauty.

So have lewd drawings scribbled on walls, vapid faces on magazine covers, and the thousand other perversions of man's unlimited longings.

I find in the photographs of Blumenfeld an astonishing realization of a certain deeply disturbing perfection which is absent from the work of most salon photographers. Blumenfeld's women are not just



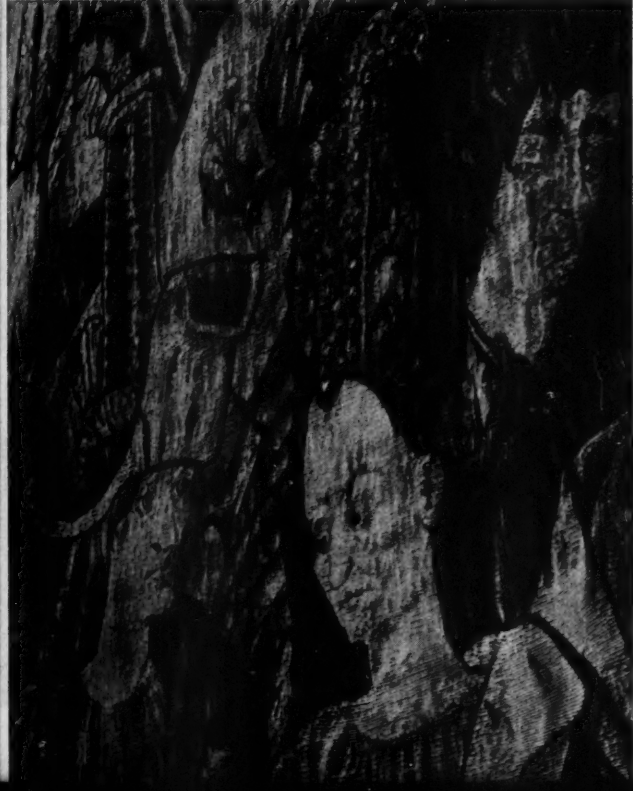
TO REPRESENT "Gothic," Blumenfeld photographs a French town through the window of an ancient cathedral.

women, or indeed, just models. They are the profound and enigmatic females whose loveliness exists specifically in the minds of creative artists.

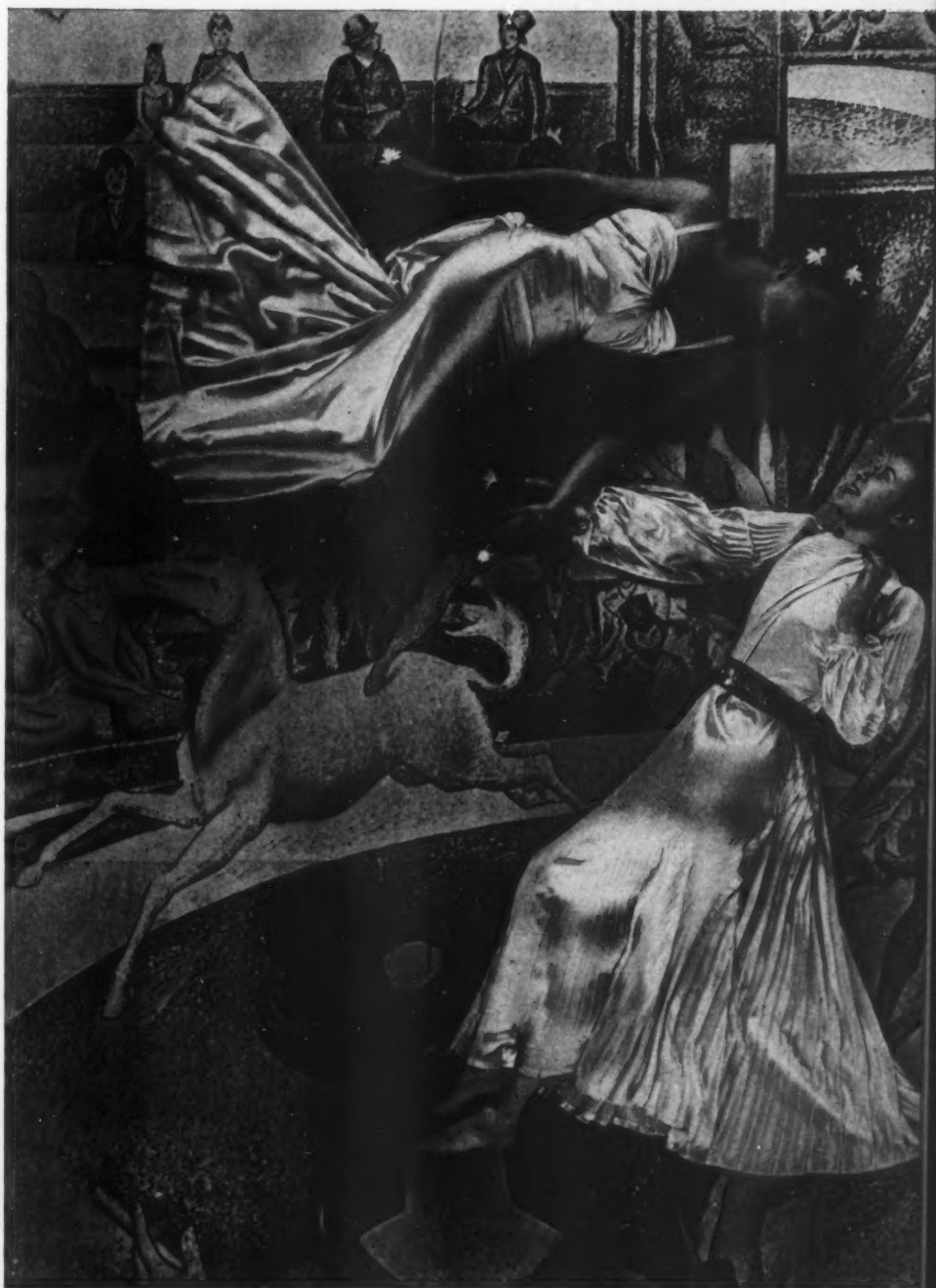
Anybody can make a photograph of a pretty girl. But very few people know how to endow this obvious symbol with the breath-taking quality which taunts the imagination and fills us with that nameless yearning which is the invariable accompaniment of a good work of art.

The women in these pictures, varied in appearance, clothing and background, are the immemorial, precious essence of desirable femininity. They haunted the saints in their temptations. Anthony and Augustine and the wretched anchorites of the Thebaide wept for the soft caresses of their silken hair, and flagellated themselves as a protection against the thoughts of their cool, resilient limbs. These soft, surprised-looking breasts have elevated the debauched empires and many good and gracious men have immolated their pride, their courage and their reason in the mystic whirlpool of these moon-colored navels.

If you must insist upon making pictures of women let them be something more than a feeble shadow of the living image. Make your own dreams pattern a matrix for



HE COPIES tapestries, painting and manuscripts because the discipline and technique of a good photographer requires such exercises. Stylized elongation is characteristically Gothic. Blumenfeld here has exaggerated this elongation and made it more Gothic than the original.



BACKGROUNDS for advertising photographs may be devised by enlarging photographs of paintings, musical scores, manuscripts, etc. The background above is a pointillist painting, "The Circus," by the late French artist, Seurat. The two figures were photographed separately. Courtesy Conde Nast.



THIS FAMOUS Eiffel Tower shadow gives the very essence of beautiful Paris without actually presenting its most typical symbol.

their beauty so that all men who see your work must realize the moving, poetic quality which animates your efforts.

It goes without saying that I am not terribly interested in the mechanics of these masterpieces. I happen to know that Blumenfeld usually uses a Linhof camera and takes as long as three or four hours to complete one satisfactory photograph. En-

dowed with an enormous creative intelligence, he does a good deal of work which the average camera man would consider boring. He copies tapestries, paintings and manuscripts because the discipline and technique of a good photographer requires such exercises.

You have seen thousands of pictures of Paris, but for my own special enjoyment



I shall always return to Blumenfeld's Eiffel Tower shadow, which gives the very essence of that beautiful city without actually presenting its most typical symbol. And when Blumenfeld decides on doing something which will represent "Gothic" he does the little French town seen through the window of an ancient cathedral.

One of his fine works of composition is his picture of a dictator. Placing a calf's head on the heroic torso of a Roman figure, he draped and lighted this grotesque creation so cleverly that it seems almost like an unusually successful montage.

He makes advertising photographs which become poems in praise of lace. Painstakingly, he devises backgrounds for his figures by blowing up musical scores, paintings and manuscripts. Alert, keen and constantly experimenting, he improvises gag lighting, gag printing and insists that photography will continue a young

and experimental art for the next hundred years.

His first professional work appeared about three years ago and he has been steadily and lucratively employed ever since. He visited New York for six weeks and had only three idle days in which to go sightseeing; the rest of the time he worked for LIFE, TOWN AND COUNTRY, HARPER'S BAZAAR, and the insatiable American newspapers. Knowing only one hundred words of English, soft spoken and unaggressive, he did more actually fine work during his short visit here than twenty fashionable, androgynous incompetents who fancy themselves aesthetes. In closing I wish particularly to remark that Blumenfeld permits no one to develop or print his photographs. It is his belief that at least 50 per cent of each job is done in the darkroom, so he does it himself.

When I asked Blumenfeld his opinion of American photography, he naturally



"THE DICTATOR" (left). On the heroic torso of a Roman gladiator, the photographer placed a calf's head. He draped and lighted this grotesque creation so cleverly that it seems almost like an unusually successful montage. It is, however, a straight print, without manipulation.



WOMEN, from earliest times, have haunted the dreams of men and inspired their music, canvases—and cameras.

declined to commit himself. But on the day before he sailed he said confidentially: "American cameramen are the best photo-reporters in the world. They see everything and get it onto their films almost as good as life. I personally prefer a little more heart and a little less technique. The best pictures are made by men who are never satisfied with their work. All cameras are fine. Now let's have good photographers to operate them."

I have only one further piece of elucidation to add to this perhaps overly-exuberant critique. Blumenfeld habitually carries a Rolleiflex to make photo notes for

future work. If he passes a strange old building in a certain state of agreeable decay, he takes a shot of it and saves the negative as a possible background for something he is planning. He made innumerable such pictures of bridges, news-stands, billboards and other typical American impediments which he intends to utilize later in Paris.

Another thing: he's firmly convinced that a nation of tinkerers like ourselves, with our strange knack for mechanics, has very little to learn from the photographers of other nations. The only thing the Hungarians, the Austrians, and the French



A BLONDE and a mirror—perfect combination for the evanescent effect of a high key print. "VEILS" (right hand page) is a typical fashion subject, yet the result, with characteristic Blumenfeld effectiveness, is more than just a mere picture for advertising purposes. It is the spirit of femininity. Courtesy Conde Nast.

have ahead of us is their emotional approach. As he says, what we need to put

into our pictures is "less technique and more heart."



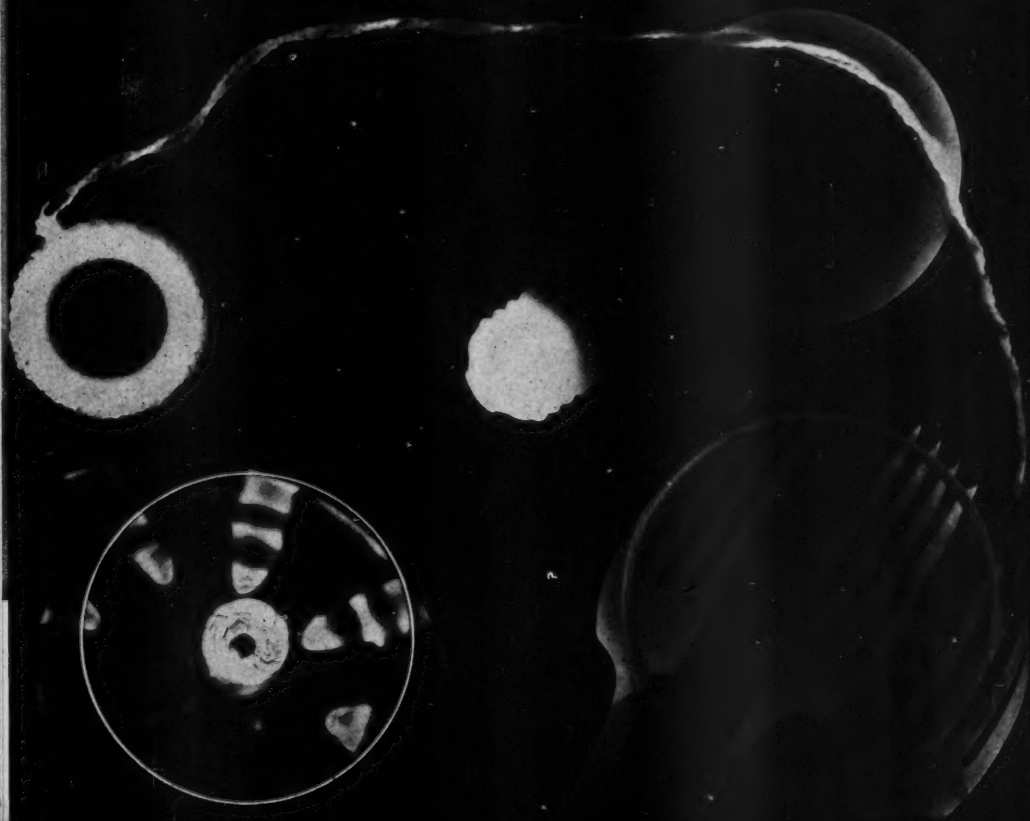
NO CAMERA NEEDED

The simplest equipment will permit anyone to make photographs and express ideas and emotions photographically

THE palette of photography consists of light and light-sensitive materials. These, manipulated by mechanical means, produce images of the things on which they have been focused. Until recently the use of these materials was limited to description in which the close resemblance to the original was the criterion of excellence. The worker was limited by reality.

No such limits are placed upon the photographer of today and the future. Casting cameras and formulas to the winds he can go into his darkroom with some sensitive paper, developer, fixing bath, a light source and his imagination and come out with abstractions or pattern pictures expressing his

SPRING CLEANING. Objects symbolic of those that are moved, dusted, or cleaned during housecleaning placed in contact with a piece of projection paper and exposed produced this photogram. The distortion in the forks results from placing them on a small glass ash tray.
FIG. 1



By SAMUEL GRIERSON

Illustrated by the Author



MUCH IS WRITTEN AND LITTLE SAID. (above) A roll of picture wire and the pencil represent the quantity that is written. The two small objects in the lower left represent the little that is worthwhile in what is written.

FIG. 2

THE OBJECTS used in these photograms were placed in contact with a piece of projection paper and then the whole thing was exposed to a white light (right).

FIG. 3

SWEET GIRL GRADUATE. The pancake turner and the safety pin symbolize the graduate's future, the other objects her past—her education.

FIG. 4



every mood. They may be anything from an interesting arrangement of forms and tones to a story told in symbols. *Photograms*, as these pictures are called, can be made by contact or by enlargement.

Photograms by contact printing. Any light-tight room may be used and the only equipment necessary is an orange safelight and a few sheets of sensitized paper. For developing the paper, a tube of 'M-Q' developer may be employed and a package of hypo. Any paper is suitable, either contact or enlarging. The objects chosen for the pattern or story are laid upon a piece of sensitized paper so that they are in perfect contact, much as objects were laid on parchment in early American spatterwork.

The light source may be any handy lamp, preferably about 50 or 75 watt. Hang it about three feet over the table. Measure the exact distance so that conditions may be duplicated at any time. Arrange the objects on the sensitized paper, using a darkroom safelight. Expose by switching on the light for the required

time and then switching it off. Be certain that the overhead light does not swing and cause uncontrollable shadows.

After exposure the paper is developed and fixed as in ordinary contact printing or enlarging.

The exposed portions of the paper darken, leaving the portions covered by the objects white. If printing-out paper is used the darkening takes place during exposure. If projection paper of the chloro-bromide or bromide types such as Velour Black, Kodabrom or Brovira, are used this takes place in development. The developer should be that recommended for the paper used.

A vertical enlarger may be used for the light source if one is available. In this case, place the paper on the enlarging easel, remove the glass in the negative carrier, lest dust spots be focused on the print, and press the enlarger switch. Keeping the lens covered with the red or amber focusing glass makes it possible to arrange

(Page 83, please)

MODERNISTIC MOUNTS

**New mounting ideas and how to
use them to display your prints**

By JACOB DESCHIN, A. R. P. S.

Illustrated by the Author

PRINTS, conventionally, are mounted with equal margins all around, or with some extra space at the bottom. This rigid scheme fails to take full advantage of the opportunities offered by the mount itself. Salons may not accept prints mounted in unorthodox ways, but there is nothing to prevent innovations intended for private showings, such as hanging on the walls of homes or club rooms. Eventually the salons, too, may appreciate the advantages of originality in print mounts.

By applying the same principles of composition which we use in the making of pictures to the positioning of the prints on the mounts, we can extend picture-making right through to the final mounting. Let the picture itself dictate the manner in which it shall be placed on the mount, not, as is the general custom, the mount dictate how the picture shall be arranged.

Two general guides are, (1) the direction in which the picture subject appears to be headed, and (2) the general shape or outline of the printed image. The object is to create an impression or effect. By utilizing one of these methods, it is easy to intensify the picture message in a manner not possible by ordinary mounting methods.

The illustrations shown here are a few suggestions that may be employed to make the mount itself help in the display of a picture's rhythm or movement. Other pictures than those used as illustrations

here may suggest other treatments. Each picture should be studied as an individual work that must be treated individually. If it suggests an oval shape, trim the picture that way and place it on the mount in the way that will display it most effectively. Similarly, if it suggests a circle, by all means trim it to a circle. Also, do not feel that just because you have a 16 x 20-inch mount you have to utilize the space as much as possible. Do not be afraid to leave a lot of unused space or margin. The space really is not unused even though the picture itself occupies but a small portion of it. The nature of the picture may demand this space; it may demand this "breathing room" in which to continue its movement and thereby to give it fullest expression.

Specifically, let us examine illustration Fig. 1. Normally, this print would be mounted vertically, with equal spaces at sides and top. But see how much more forceful is the treatment given here. The space to the right is not wasted; it is the imaginary space through which the arrows fly to their goal. Photography of the most effective sort can seldom include the two extremes of a movement. It must concentrate on the one or the other. Spacing on a mount will supply the missing in-between area that unites, through the imagination of the beholder, both the source of the movement and its end. Figure 1 is one method of achieving this. The second diagram is merely the reverse of



PLACING a print in the lower left hand corner of a 11 x 14 inch mount adds new force and emphasis to any photograph of this type. The space to the right is not wasted; it is the imaginary space through which the archers' arrows fly to their goal. FIG. 1

the first and can be employed with subjects in which the movement is projected the other way.

Group pictures of the sequence type are effectively mounted by the method shown in Fig. 2. Its action moves from the lower left to upper right, at which point the action is completed. Where the movement starts from above and gradually proceeds towards the ground, the positioning of the prints would be the reverse.

The diagram next to Fig. 2 shows a variation in which the final picture is an oval. Were the prints arranged with the mount in a vertical position, this oval might well be a circle or even a square. All depends on the nature of the prints and the picture content.

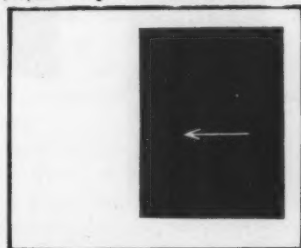
The upward diagonal direction of the pleasure plane in Fig. 3 moves freely towards the sky, stimulated on the mount by blank space. Similarly, with Fig. 6, in which the course of the walking man is diagonally downward across the picture towards the lower left.

The cat in illustration Fig. 4 is the picture's



DIAGRAM, above, illustrates the type of mounting composition employed in Fig. 1.

DIAGRAM, below, indicates how to mount a subject in which potential movement is toward the left.



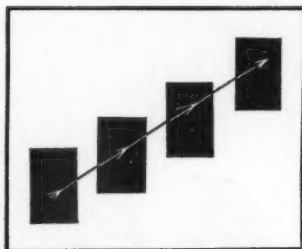


THIS arrangement may be used either for sequence pictures or for a group of related pictures in which one is to be emphasized.

gives the cat prominence and apparent ease.

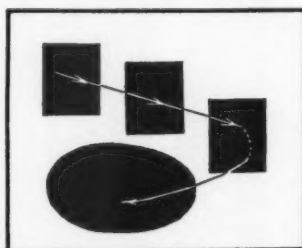
Fig. 5 is mounted in practically the reverse of the usual method, having been placed at the bottom, with the greatest space above rather than below. This was decided upon because the "weight" of the picture was all toward the bottom, a triangular grouping with its apex in the lower left corner. Because of the prominence of the boy sitting on the rock, the print was mounted so that there was a little

principal point of interest. Our job in mounting this picture, therefore, is to bring this cat into fullest prominence. We accomplish this by placing the print in the upper left-hand corner of the mount, with the greatest mount space at right and below the print. The cat is looking towards the camera as indicated by the broken arrow in the diagram. Facing up towards the photographer, the manner in which the print has been mounted



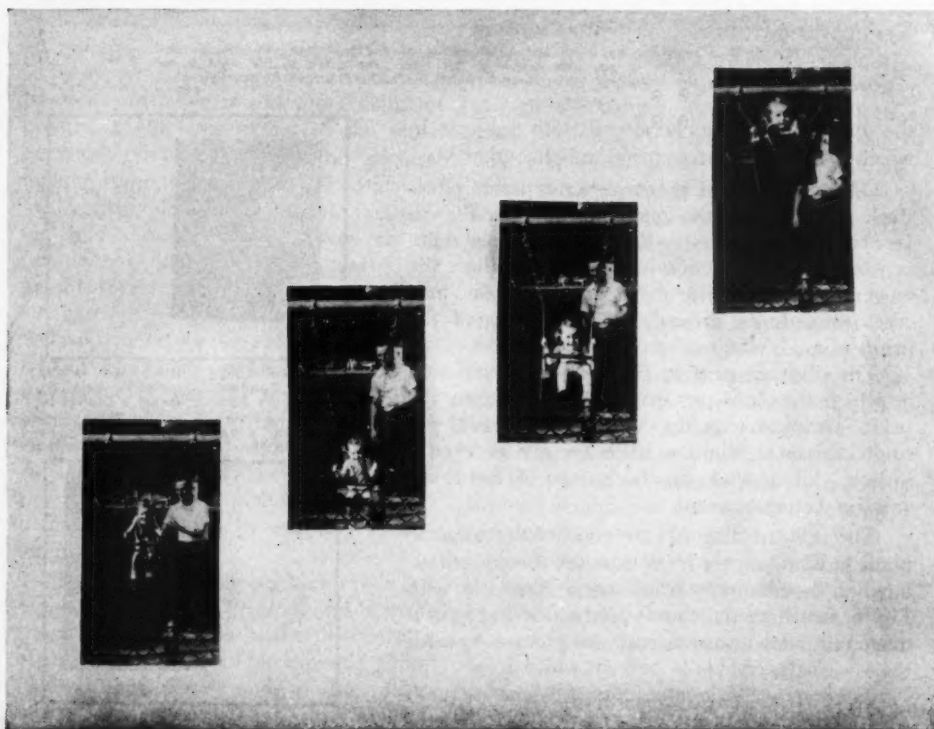
THIS diagram indicates the direction of the eye's movement when viewing Fig. 2.

A VARIATION (below) in which the final picture is an oval. Were the prints mounted vertically, the oval might be a circle or a square, depending on the nature of the prints and the picture content.



SEQUENCE pictures gain additional momentum when effectively mounted. See diagrams above. The illustrations for this article are reproduced from 11 x 14 inch mounts.

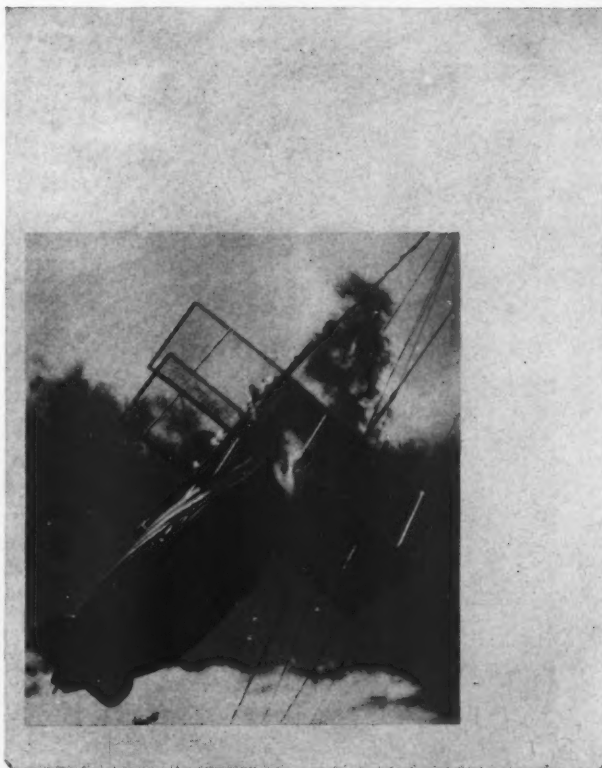
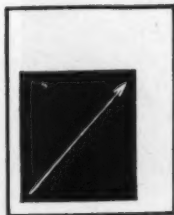
FIG. 2



additional margin at the left. A secondary consideration in deciding on the position of the print was the fact that in its final placement, the picture seems to inspire a sense of intimacy and restfulness. It "feels" right.

Sometimes a print will suggest a circle, as in illustration Fig. 7. Our gaze goes round and round, held within the picture space, without any hint of an exit. In such cases, there will be two things to decide: how much of the subject is to be included within the circle, and where on the mount the print should be placed. Trimming is done so that the subject proper is isolated from the surrounding area, the suggestion of breadth and space being provided by the unused portion of the mount itself. Placing the print in the upper right corner, in this instance, gives the impression of this Coreopsis high above the ground.

Trimming the print to a circle is done by studying the print through the back. Hold the print up, back toward you, in front of a window during the day or close to an electric light at night, and roughly trace the area you want to include. When this has been decided to your satisfaction, make the final circle by using a pencil compass or pair of dividers. You can obtain a serviceable pair in the five-and-ten-cent store for a dime. After the line has been drawn, it is a simple matter to cut along the marked cir-



THE WIDE MARGIN stimulates the upward diagonal of the happily-flying plane. FIG. 3

cle with a pair of scissors.

Fig. 8 is arranged on the mount in somewhat the conventional manner except for the shape of the print itself, which is an oval, the latter having been suggested by the shape of the head as well as the angle. The angle is aided by placing the print diagonally, thus assisting in getting across an impression of liveliness and movement. The print was trimmed in the same manner as the circle described above except that the oval had to be drawn free-hand. This is a fairly simple procedure because the oval does not have to be exact but can be slightly varied to follow more agreeably the general outline of the image.

Some prints will fit best into some variation of the pyramid arrangement. Fig. 9 shows how trimming to a rough triangle helped to emphasize and make prominent



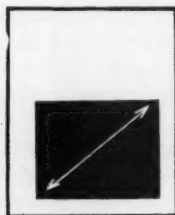
THE CENTER of interest, the cat, is near the center of the mount and to the left—always a dominant point of interest whether on a photograph or a mount. FIG. 4



sired shape in the position the print is to occupy. If the latter method is employed, the top mount is marked off in pencil. With a sharp knife follow along the marked lines firmly but carefully, with a steady pull free of jerks and unnecessary halts. Poise the knife at a slight angle so that a beveled edge is obtained. Mounting of this sort provides a kind of frame for the print that often enhances the general effect. The most difficult shapes to cut in this way are the oval and the circle and for these you may wish to avoid the double-

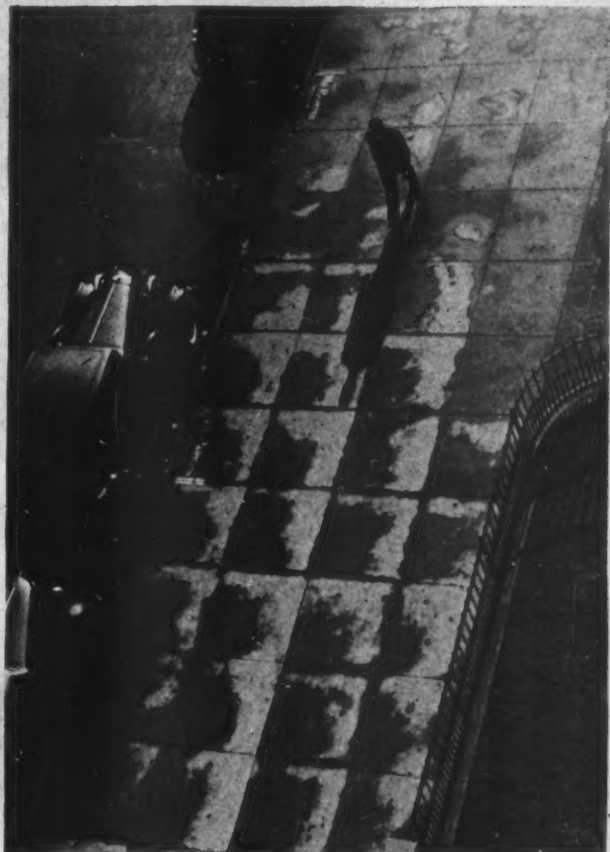
the chief point of the picture, namely, the dark head on the stand, which was at somewhat of a disadvantage in the original print because of the large amount of white area in the print. Marking off for this type of trimming can usually be done directly on the face of the print, with the aid of a straight edge and a sharp knife.

An alternative to the shaping of the print itself is the shaping of the mount. The cut-out mount uses two cardboards or mattes, with the top one cut the de-



PLACE the picture on the lower part of the mount only if the "weight" of dark tones at the bottom of the photograph justify this placement, as in this case. Note the strong diagonal force of this composition. FIG. 5





THE COURSE of the walking man, diagonally toward the lower left, is dramatized by mounting the print with a narrow margin on top, with slightly more space at the right, and with maximum width of border at the bottom. The lower border is slightly wider even than the left-hand one.

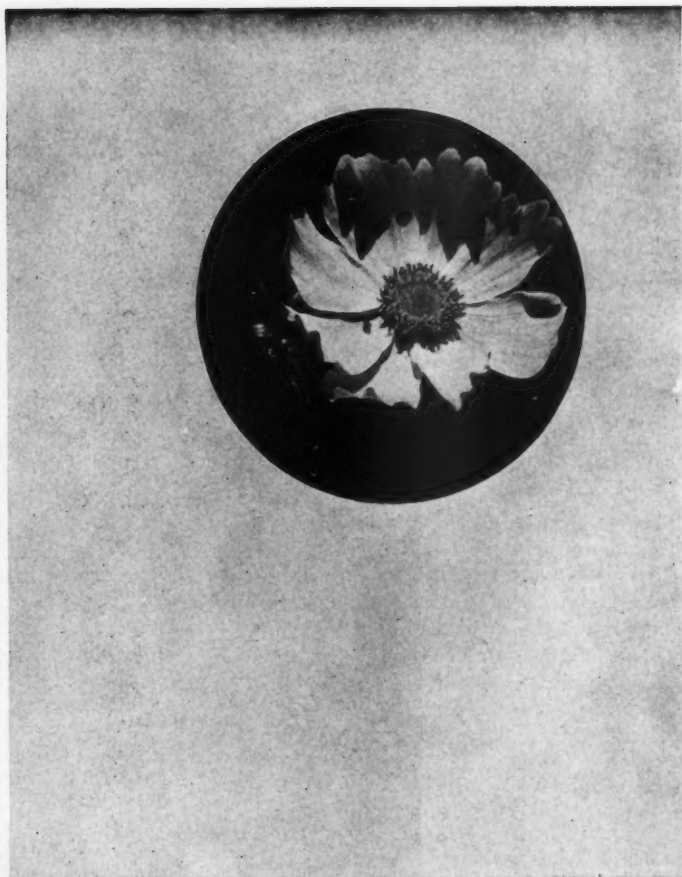
FIG. 6

mount method. For those who may want to do considerable work along these lines, a special tool is available for cutting mount openings, the Cut-a-Mat (Willoughby's, N. Y.). It does the job neatly and quickly, whether curved or straight lines are called for.

It is advisable, in following this method, to make a rough print as well as the finished one for experimenting as to shape and position on



A CIRCLE is suggested by flowers, portraits and many other subjects. The small photo above illustrates the print before circling and mounting. Because paintings usually are rectangles, it does not follow that all photographs must be rectangles. Take advantages of other shapes. FIG. 7



the mount. After having determined where the print is to be placed on the mount and what shape seems to be most suitable, accurate measurements can be made on the mount that will prevent the possibility of error when arranging the final print.

The space in which the mount is to be hung may also suggest the method of mounting. A triangular space, for exam-

AN OVAL is suggested by the human head. The oval need not be exact, but may follow the general contour of the subject. The sides of the face determine the direction of the compositional lines of force in this study. FIG. 8



ple, such as will be encountered in the attic, might take a triangular-shaped mount with perhaps a circular print. Thus, by exercising a little ingenuity and feeling free to adopt individual, unconventional mounting methods to fit special circumstances, bare spaces in the home may be agreeably filled up and thereby improved in appearance.

Unconventional mounting methods may further be extended to the picture album, in which pictures may be mounted as described above to the general improvement of the album. The large spaces may be devoted to short captions neatly lettered and spaced. Even the familiar picture postcard or greeting card when prepared for one's individual use may be treated in this way.

The actual mounting may be done with

rubber cement or dry mounting tissue. Spread the adhesive smoothly over the entire back of the print with a spatula made of cardboard or very light-weight wood. Press the mounted prints under weights evenly distributed over the surface.

In dry mounting mark lightly the position of the corners of the print on the mount. Cut the tissue the same size as the print, lay it on the mount within the penciled marks and touch the corners with a warm iron so that the tissue is held in place. Then lay the print on top and put the whole thing into the dry mounting press. Dry mounting is also possible without a press. After the print has been laid on the tissue cover it with a sheet of medium-weight bond paper and then run a warm iron (regulated for silk) slowly over the entire picture.



TRIANGLES, trapezoids and other shapes are suited for various subjects, and cropping in geometrical ways often makes it possible to cut out extraneous details. FIG. 9

COLOR *Photogra-*



A thrill is in store for you if you have yet to load your camera with its first roll of color film. Let color add a new dimension to your pictures.

By EMIL KARCHES

COLOR PHOTOGRAPHY has been talked about so much that many people are half afraid to try it. Many others fail to realize that color film is available in all standard sizes and that any camera can take pictures in full color.

To take good color snapshots, the two factors to be given careful thought are (1) choice of subject matter and, (2) choice of lighting. When taking a monochrome (black and white) picture, you

phy

SIMPLIFIED



YELLOW WHEAT against a cloud-filled sky is a "natural" for color film. If the subject can be kept flat or evenly lighted. Fig. 1

watch for the arrangement of light and dark areas. When taking a color shot, you select subjects for the arrangements of their colors. Contrast is furnished not by degree of illumination, but by the colors of the subject.

Fig. 1, for example, is a simple arrangement of yellow wheat and blue sky. Fig. 2 is an arrangement of red and green. No monochrome reproduction can do justice to the beauty of these flowers. You have to shoot them in color.

The second problem, type of lighting, is closely related to the first. Because contrast is supplied by color, contrasty lighting is not necessary. Lighting for most subjects should be flat and even, such



FLOWERS make good color subjects. Care must be taken to light the darker green leaves and stems so that they will not be underexposed. By Janet Weston from New York Camera Club. Fig. 2



FLAT LIGHTING makes this a good color subject. Dufaycolor is used for outdoor subjects without a filter. By E. J. Karches. Fig. 3

THE rich orange, greens, and browns of harvest time under a flat light make a perfect subject for a color shot. By Janet Weston from New York Camera Club. Fig. 4



as obtained on a slightly cloudy day or in the open shade. Evenness of illumination is not only desirable, but it is definitely necessary because the brightness range of color film is less than a tenth of the brightness range of black and white film.

A third problem is exposure. Use the exposure table packed with each roll of color film. Recommended exposures for outdoors, for flood and for flash lighting with Dufaycolor film are given at the end of this article.

When using a meter, make several readings of various parts and colors in the subject and take the average. For black and white film, consideration is given only to the general shades of gray. In color photography, each color has its own reflecting power, varying in the amount of light it reflects. In making a picture of a girl wearing a red blouse, green skirt and a blue hat, the reading for the hat, let us say, is 200, the skirt 100, and the blouse is 300. A reading of the skin is 500. Add all the figures. Divide the result, 1100, by four. The average in round numbers is 300. This figure is used as the basis for the exposure.

Figs. 2, 3 and 4 illustrate subjects which are likely to gain 100 per cent when shot in color.

Fig. 1 and Fig. 4 are subjects which require a decision in advance, as to whether they are to be made in black and white or in color. Fig. 1, for example, is a beautiful black and white as produced here. But notice the contrast in the girl's face. The shadow side is more than ten times as dark as the highlight side. With color film there would be no color on the shadow side, just a gob of shadow.

Therefore, to duplicate this shot in color, you would have the girl move her head to her left (toward the light) so as to obtain evenly illuminated features.

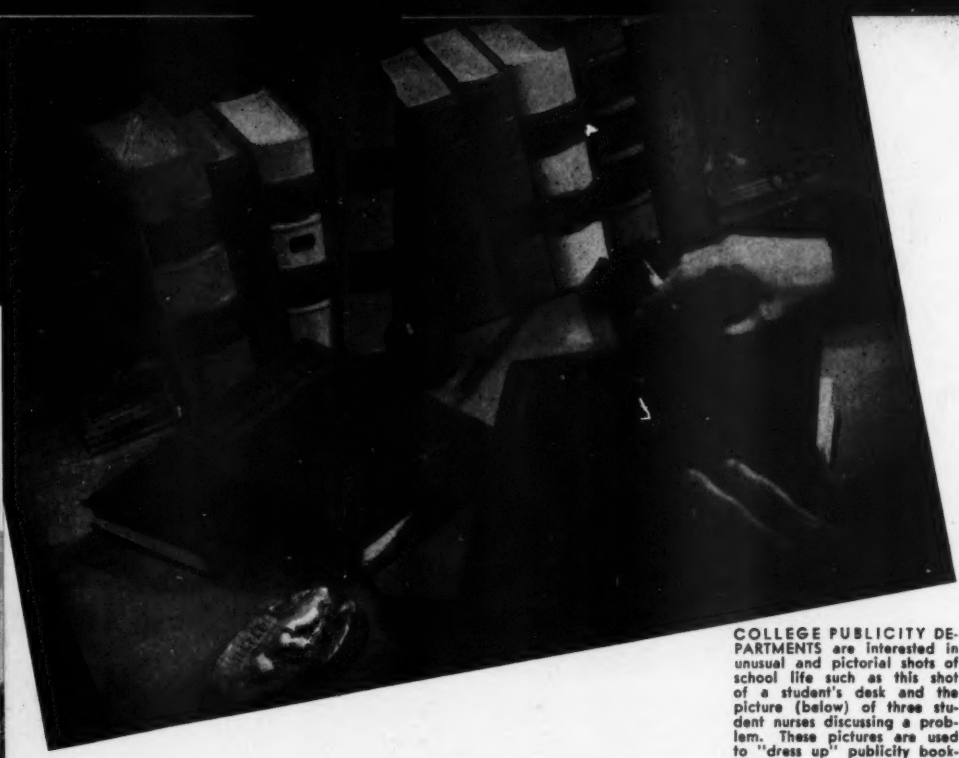
Color film has less brightness range, or latitude than has ordinary film. The latitude of a film is the number or range of individual tones which can be reproduced. For example, a film with a latitude of one to five would be capable of recording five tones, white, light gray, medium gray, dark gray, and black. Monochrome film usually has a latitude of about one to one hundred.

As the brightness range in most scenes is much less than the exposure range of a given film, a num-

(Page 84, please)

WOODLAND DIP (right hand page) is a beautiful shot in black and white. In color, however, the latitude of the film would not be great enough to render both the distant evergreens and the bright foreground tree trunk. Simplest solution, when color filming, would be to eliminate the tree from the composition. Fig. 5

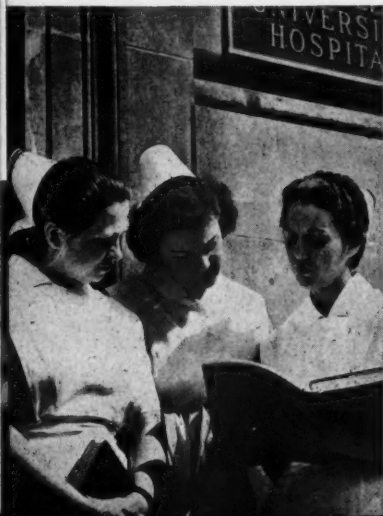




COLLEGE PUBLICITY DEPARTMENTS are interested in unusual and pictorial shots of school life such as this shot of a student's desk and the picture (below) of three student nurses discussing a problem. These pictures are used to "dress up" publicity booklets. Figs. 1 and 2

SCHOOL DAYS

bring opportunities for Camera \$\$\$



By **ELLIS O. HINSEY** and **WILLIAM MINOR**

Illustrations by Ellis O. Hinsey

OPPORTUNITIES await the college student photographer. As a free-lance worker his opportunities are limited only by his time and his ability. Building up a business requires planning and ingenuity but once it is started it will roll of its own momentum.

Students want pictures of the school itself, of themselves and their friends, and of school activities. The easiest way to begin is by photographing the college buildings. Enlargements of these may be displayed and sold by the college bookstore. Photo-

graph sorority and fraternity houses and send sample prints to each house.

Photograph school teams and the individuals on each team. Take them in action. Cover intra-mural games. Each person photographed is a prospective customer. Rush proofs through as soon after the event as possible and get them on exhibit—in the training house, the bookstore, dormitory, fraternity house, or on school bulletin boards.

Watch the school calendars for events and see the necessary people beforehand so that you will be able to get vantage points from which to work. Make a series of pictures telling the complete story of Homecoming, Mayday, graduation week,

rushing, Senior Prom, Junior Prom, hazing, etc.

The college publications are interested in good spot news pictures of activities such as the new class officers, the Inter-Fraternity Council, a panhellenic meeting, the Sophomore-Freshman Hop, the Pirates Ball. If they like your shots, create the job of class photographer for yourself.

Show your work to the college publicity director. He needs photographs of college life for his promotion booklets and advertising. If you haven't exactly what he wants, offer to make pictures according to his specifications. Usually such photographs must be made from unusual angles

(Page 74, please)

"FIRST DAY OF SCHOOL" shot sells to local newspapers. It, too, will interest the publicity director who is looking for unposed pictures of students participating in college life. Fig. 3



How to use

BULK FILM

Buy film in bulk at a saving and load it into cartridges or cassettes in the darkroom or with this easily built loader.

**By CARLETON MITCHELL
and VICTOR H. WASSON**

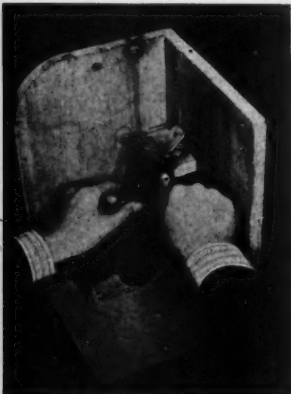
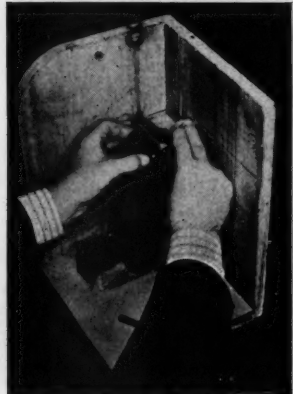


BULK film loading for 35 mm. cameras is economical and practical. No special equipment is necessary and film costs can be cut 50 per cent. A good introduction to bulk film loading is the use of 27½ and 55 foot rolls which are supplied by most film manufacturers. These rolls are notched and tongued at the proper 36 exposure intervals. The 100 and 200 foot rolls are even cheaper per exposure, but are not as convenient to handle.

Some cameras take cassettes which are light-tight and can be put into the camera anywhere. These are a good investment if available for your camera. The ordinary cartridges supplied with "readypacked" 35 mm. rolls are also usable. Save them or ask your photofinisher for some.

If using a cassette, practice until its assembly be-

PRACTICE until the assembly of a cassette becomes mechanical. (Top.)
FIG. 1
THE FINISHED loader with the light-proof sleeves attached. (Left.)
FIG. 2
THE END cover (lower left, three sides removed for photograph) is placed on the cartridge jacket and the reassembled cartridge inserted into the clip jaws.
FIG. 3
HOLD the film lightly by the edges while winding. Thirty turns will fill a cartridge.
FIG. 4
WHEN the cartridge is full (lower right), cut the film leaving about four inches as a leader.
FIG. 5

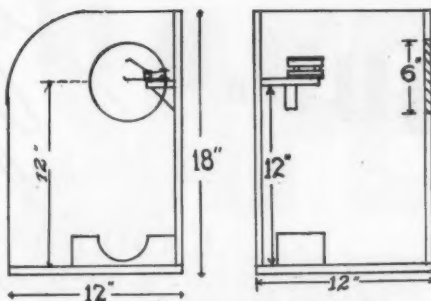


comes mechanical. In the darkroom, lay things out in convenient order. When opening a 27½ or 55 foot roll be careful that the center does not drop through, as it is not wound on a reel. The free end is already notched for insertion into the spool of the cassette. By holding the spool in the left hand and the roll of film in the right it is simple to wind the film onto it. The sprocket notch in the spool should point away from you. Wind the film firmly and evenly. If it seems to be wound too loosely do not "cinch" the film by pulling it tight. Unwind it from the spool and rewind with an even tension.

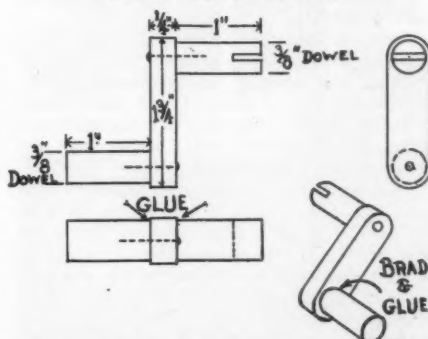
The tongued end will come to your fingers when the proper length of film is on the spool. Then cut the film where the tongued end meets the next notch. Put the roll back into its container and the spool into the cassette, which is then ready for use.

If the cassettes are not available for your camera, the procedure is about the same for ordinary cartridges (Fig. 1) except that it is necessary to fasten the notched end to the spool with a bit of Scotch or adhesive tape. Winding is the same. When putting the spool into the cartridge, be sure that the film comes through the velvet-lined slit before putting on the end cap, and that the cap is on securely before turning on the light.

The 100 and 200 foot rolls require a slightly different technique. The easiest to use are those wound on metal reels. Clamp the end of the film into an ordinary drying clip, fastened to the wall as high as you can conveniently reach. To measure the film, cut a piece of lintless string the desired length and insert it in the same clip, unroll the film, measure it with the string and cut. Make a notch with scissors or a sharp knife in one end and insert the notched end of the film into the cassette spool or tape it to a cartridge spool. Wind with an even tension towards the clip. When within a few inches of the film end, loosen it from the clip, and put the spool into the cassette or cartridge. Trim the tongue end after turning on the light.



DRAWING of the loader illustrated on the previous page. Note the position of film trough and clamp which holds the cassette or cartridge.



CONSTRUCTION details of crank.

FIG. 7

When using the longer rolls of bulk film, any desired number of exposures may be loaded. Measure the length of the number of frames desired—6, 12, 18, etc.—and add four or five inches on either end. Cut a piece of string the desired length and use it in the darkroom to measure the film. Never touch the film on either side; handle it by the edges. Practically any dark room where there is no direct current of air is satisfactory for bulk loading.

It is convenient to carry bulk film while traveling because of the small packing space required. With the 27½ or 55 foot rolls, a changing bag is simple to use, as the film roll and spool can be held almost together. On a trip, or wherever it is impossible to unwind the film from the cassette or cartridge directly into a developing tank, the film should be unwound from the spool and rewound into a small roll. This should be wrapped in

(Page 81, please)

BUILD IT Yourself

CAMERA BELLOWS

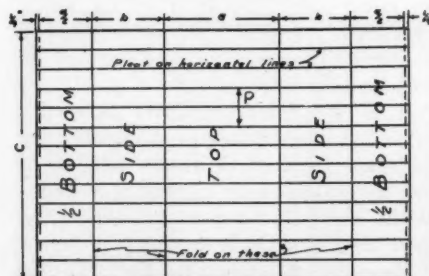
By DAVIS HUTCHINSON

AN inexpensive bellows for an enlarger, copying camera, etc., can be made from black paper or leather.

There are two types of bellows: straight and tapering. A "straight" bellows, one that has the same size opening at both ends, is made as follows: Cut a sheet of stiff black paper about $2\frac{1}{2}$ inches wider than the circumference of the opening and 3 inches longer than the maximum extension desired.

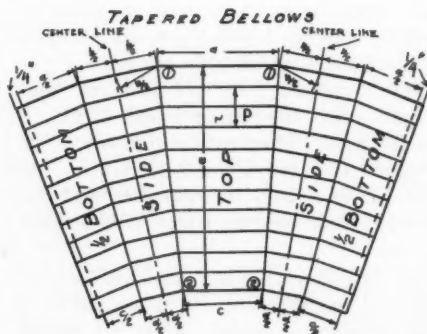
Draw parallel lines across the paper, $\frac{1}{2}$ inch apart for an average size bellows, or $\frac{3}{4}$ inch to 1 inch apart for a large bellows. Divide the sheet lengthwise into five sections, as in Fig. 1. For a square opening add to the top and bottom sections an amount equal to the width between two folds, i. e., 1 inch for a bellows in which the parallel lines are $\frac{1}{2}$ inch apart; $1\frac{1}{2}$ inches or 2 inches in larger bellows. Note that the seam comes in the middle of the bottom section rather than at a corner, and that $\frac{1}{4}$ inch is allowed on each end for lapping.

Pleat the paper along the parallel lines accordion fashion, using a straight edge. Flatten the paper and fold it again, this time reversing the direction of the folds so that each crease will fold in or out at will. Then fold on the vertical lines, making the corners, and fasten the ends with rubber cement.



STRAIGHT BELLOWS

PLAN for a straight bellows. b is $\frac{1}{4}$ of (the circumference of the opening plus $2\frac{1}{2}$ "); a is the width of b plus the width of p ; c is cut $2\frac{1}{2}$ longer than the length desired for the bellows. Fig. 1



PLAN for a tapered bellows. a is $2\frac{1}{2}$ longer than the length of the completed bellows; b is $\frac{1}{4}$ of (the circumference of the opening plus $2\frac{1}{2}$ "); a is the width of b plus the width of p ; the widths of d and c depend upon the size of a and b and the length of the bellows. Fig. 2

Study the bellows on a camera. Notice that two sides are folded outward and the other two inward. The sides on which the extra width was allowed are to be folded outward, thus making a square opening.

The most accurate method of making a tapering bellows is to lay it out as shown in Fig. 2. Be sure to add the inch for folding and $\frac{1}{4}$ inch for joining. The folding and pasting processes are similar to those used in making the square bellows.

If a leather bellows is desired, make a paper one and cement a piece of thin leather to it with rubber cement. Crease the leather along the folds in the paper.

To facilitate fastening the bellows to the equipment, glue strips of wood veneer to the ends.



BELLOWS partially folded. Note that the short side is folded in and the long side out. Fig. 3

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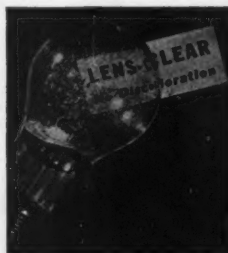
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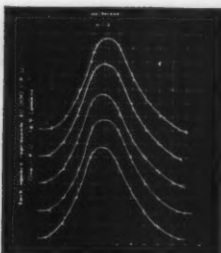
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• Oscillographic photo-meter test chart, above, shows amazing uniformity of Superflash's positive, split-second synchronization.



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Being CRITICAL

Your snapshots and how to improve them

In mailing prints, address to above department.



CHEER LEADER. Pilot 6 camera, Agfa Superpan Press film, f/11, 1/150th.

THE technical quality of "Cheer Leader" cannot be criticized, but the posing of this picture, and it is apparently a posed picture, can be greatly improved. In the first place, a cheer leader should be so intent upon the audience that even though it is outside the range of the camera the viewer should be aware of its presence. The girl's eyes should face ahead instead of toward the camera. This creates a worried expression as if she were trying to keep track of something going on behind her back.

The background of the picture is also disturbing, for the girl is apparently posed near a school building which detracts from the picture and confuses the composition. The straight line formed by the roof and the girl's head is unfortunate. Lines which have nothing to do with each other should never be permitted to join.

If it were necessary to include the building in the background, it would have been better to fill the left side of the picture behind the girl's head with the dark mass of the structure, leaving the light sky in front of the face to give the impression that the girl is looking out of the picture. In this way the background would not become confused with the main interest of the picture which starts with the girl's face and then leads off to the megaphone.

SHOOTING against the sun makes for dramatic pictorial results but such simple errors as are shown in "Afternoon" must be avoided. Since we are bound to get a silhouette effect when we shoot against the sun, im-

portant parts of the composition must be outlined against an area of contrasting tonal value. In this picture the statue becomes confused with the building behind it and loses its charm. If the position of the camera had been moved only a few feet to the right the statue would have been sharply defined against the sky. Such a position would also put the sun behind the building in the upper right hand corner of the picture, thus avoiding the halation which eats into the outline of the structure.

If there were no building to conceal the sun it would be necessary to wait until it were covered with a heavy cloud. If the clouds are not dense enough to effectively conceal the sun then this area must be printed in by giving as much as four or five times the exposure required for the rest of the print when enlarging from the negative. This can be done easily by using a dodging mask with a small round hole cut in it. After the sun area has been printed in, it will generally be necessary to give the entire sky area several times the exposure required for the foreground to bring out dramatic quality in the clouds.



AFTERNOON. Rolleiord camera, Agfa Superpan film, f/11, 1/100th.

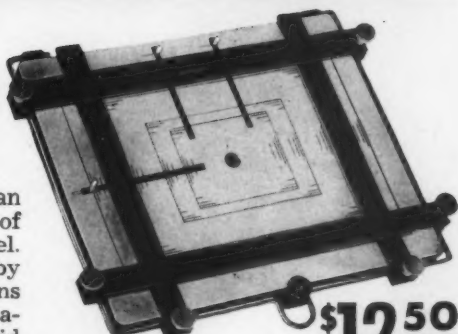
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WHAT IS THAT? If a strong light source lies in one direction and the camera is placed in another, measure INCIDENT light half way between the two. Rolleiflex, Panatomic film, f8, 1/50. By W. Suschitzky. FIG. 3

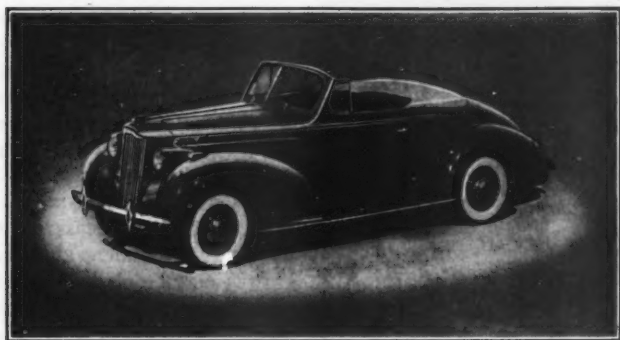
Exposure by Incident Light

(Continued from page 25)

about half way between the main light source and the camera usually gives the best results. When the light level is low, a slight deviation from the photographer's estimate as to what is half way between the camera and the light source does not make a great deal of difference.

Because of the techniques employed by different users of the meter, some have found that factors other than ten worked better while others have obtained good results by altering the film speeds. Either type of correction may be necessary for the personal habits of the user, or may correct for the variables which occur in other photographic equipment used to

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With a movie camera, the factor of 10 may be taken into account before setting the calculator. For instance, when operating at 16 frames per second, with a shutter speed of 1/30th of a second, set the calculator 1/300th, the actual shutter speed (1/30) being ten times 1/300.

If photography is confined to monochrome rather than color, there should be no possible concern about the shortcomings or possible errors in any of the methods discussed above. If color film is used the photographer should be able to have perfect exposures nine out of ten times.

WHILE THEY LAST

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So You've Bought a Camera

(Continued from page 18)

Cameras not in the fixed or semi-fixed focus class have a continuous adjustment, usually from three feet to infinity. "Infinity" indicates all subjects a hundred feet away or more.

Until recently, most cameras were of the guess-focus type. The photographer estimates the distance to the subject and then sets the lens accordingly. Many lensmen can estimate distance quite accurately. When time permits, photographers use a tape measure or pace off distances, figuring three feet per step.

A camera equipped with a coupled range finder (such as the C model Argus) is optically set for distances. Looking through the rangefinder window, the camera subject may appear like Fig. 22, split in two. By rotating the rangefinder dial while looking at the subject, the halves of the picture are slowly brought together as in Fig. 23, indicating that the camera is correctly focused and ready to shoot.

How to hold the camera. More snapshots are ruined by an unsteady hand than any other single cause. Fuzzy, unsharp pictures often are blamed on the camera or lens when the fault is the camera user's lack of steadiness.

The usual camera hold for horizontal pictures is illustrated in Fig. 24. The back of the camera is held against the nose or forehead. The elbows are pressed firmly against the sides.

Turning the camera upside down, as in Fig. 25, allows the back of the camera to fit flat against the forehead. This position is favored by many experienced cameramen and it provides good rigidity. Practice using this hold for several days, picking up your camera and going through the motions of focusing and snapping a picture.

For vertical compositions, hold the camera as in Fig. 26, with the thumb of the right hand on the shutter release, and the back of the camera pressed flat against the cheek and forehead.

Stand with the feet well spaced, or lean

LIFE Bought It . . . GRAFLEX Made It!

"Squalus"—a Graflex-made
Picture by James A. Jones



DURING the few seconds the Squalus was visible on that first attempt to raise the submarine, opportunity knocked but once . . . but photographer Jones of the Boston Post was ready with his Graflex. Among other shots, he made the above which was featured in LIFE and other publications. Undoubtedly it is one of the great news pictures of the year. Follow the lead of successful photographers. Make great pictures with Graflex American-made, Prize-Winning Cameras.

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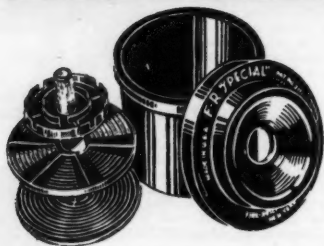
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against a support such as a convenient wall or tree. Take a breath and hold it while you remain perfectly steady and gently squeeze the shutter release.

What exposure to use? The correct exposure for the average subject in bright summer sunlight, when a fast film like Agfa Superpan Supreme is used, is 1/100th of a second at f11. The next article in this series will tell what exposure to use and will include accurate guides for determining the aperture and shutter speed to use under all conditions.

School Days Bring Camera \$\$

(Continued from page 63)

and must glorify the college and its life.

The rotogravure sections of newspapers in the vicinity will be interested in series of unusual pictures such as the new speech class making recordings or the progress of an experiment in the psychology laboratory. Young people's publications such as **FORWARD**, Witherspoon Bldg., Philadelphia, Pa., and **CARGO**, 810 Broadway, Nashville, Tenn., use such pictures.

College News pictures such as the Freshman-Sophomore waterfight, registration, a new discovery in the physics laboratory, etc., are bought by publications such as **COLLEGE HUMOR**, 22 W. 48th St., N. Y. C., and **COLLEGIATE DIGEST**, 1645 Hennepin Ave., Minneapolis, Minn.

Prices range from 25c to \$10.00 or \$15.00. Prints sold to students bring from 25c to \$1.00 apiece. Publications usually pay from \$3.00 to \$10.00 per print. Prints used for window display should bring \$5.00 and shots used for advertising will bring \$10.00 and up depending upon the quality of the picture and the use that is made of it. It is important to have a model release signed by every recognizable person in a picture sold for advertising.

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War Photography

(Continued from page 33)

Eastman developer and hardener packaged for amateurs. I don't know enough about the chemistry of processing film to fool around with the special mixtures. In any event, when travelling, it is best to stick to standard equipment which you can replace easily.

Universal among the newsreel men is Bell and Howell's Eymo camera. Eric Mayell, H. S. "Newsreel" Wong, George Krenukov, and most of the rest use the Eymo almost exclusively. For particularly rough assignments which entail a good deal of travel and knocking around, a DeVry often appears. Standard selection among the newsreel men as with the still cameramen is a variety of filters and good fast film. Light conditions in the Far East vary a good deal from those in the United States as do the colors of fields and trees. Above all, soldiers' uniforms and camouflaged equipment often make necessary every trick to heighten contrast. Guerrilla troops, particularly, operate with their first principle as deception and disguise. They attempt to remain hidden for as long as possible, and unless the photographer is making closeups which are dangerous, he needs every facility for heightening contrast in his negatives.

One of the big problems in getting pictures in times of comparative calm and peace is the curiosity of the people. The Chinese, civilian or military, must be the most curious people on earth. As soon as they see a "yang kweitze" or "foreign devil" open up his "giao shang" or camera, they crowd around until the photographer is hemmed in on all sides.

I tried to remember every "sneak shot" technique I had ever heard about, but I guess there aren't any rules. Different people react differently. The best way to overcome curiosity is to keep the camera concealed as long as possible and then work quickly. I usually get an exposure reading before getting to the scene I want to photograph, or guess at what

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diaphragm opening and speed I want before bringing my camera out of hiding.

This sometimes results in an under- or over-exposed negative, but this can be remedied later by using intensifier or reducer. It is usually better to work on the negative than on the print because in the backwoods the selection of grades of contrast in printing paper is often limited.

There is no need to worry about the idly curious when in a really tight spot. Everyone is so frightened or busy that there is no time for camera curiosity.

Soldiers are usually as self-conscious as anyone when they are having their picture taken. But when they are being bombed, or just before an attack, the cameraman is farthest from their thoughts. This is the time when we get our best—and our worst—stuff.

One morning in the summer of 1938 I was travelling on the famous Canton-Hankow railway. The train ground to a sudden halt in the open countryside and the locomotive let loose with its whistle—air raid. I grabbed my camera spare film and filters and dove out a window. I ran up the side of the train to the locomotive and got a head-on shot of the train with the last couple of passengers hopping across the tracks, headed for the open fields and comparative safety. I tried to get the approaching planes in the picture, but they were very high. Then I followed the rest at a run and flopped on my stomach under the protection of some ever-present grave mounds. But the picture, I found later, was not much good. The planes didn't show up, they were so small. This was—for me, at least—the typical photographic result of an air raid.

This type of picture is hardest to get. The planes are high and usually look like flyspecks on a print. A bomb explosion from a distance can be mistaken in a print for nothing more spectacular than an Autumn rain cloud. Close up, one looks very much like another—a lot of smoke and dirt in the middle of the picture.

There is an eternal demand for something new and different. In September, 1938, I was assigned to the north-central

front to find out how the war was progressing and to get pictures—"something new, get a fresh angle," said my chief. The railway north of Hankow had been heavily bombed for a week, the service disrupted. But I got the first northbound train one midnight and by dawn we were in the danger zone. At eight o'clock we were pulling into the little station of Hwa Yueh where the bombing had been heaviest. As the train stopped, the air alarm sounded.

Piling out of the train, I stumbled over a dead mule. Across the railway yards was the twisted steel carcass of a burnt and bombed train with the charred remnants of a few soldiers nearby. I ran for some open fields next to the railway yard and flung myself below the brim of a dried-up pond. The planes were near but circling. They waited for what seemed ages, just hovering up there waiting to loose their missiles which would be sure to bash some of us to bits. I hoped I wouldn't be one. We can't tell where they will unload in open country like that. The farmhouse 50 yards away may be a headquarters and the planes' objective, the railway 200 yards away may be their target, or the village at our back may contain an arsenal or munitions dump they're after. And Japanese bombing is often inaccurate.

Six planes circled lazily over us, close enough for us to see their wing insignia. Apparently they were going to leave without bombing. I was about to go back to the train when they returned, separated into echelons of three. The first echelon was coming straight at us, the other from an angle. As their angle of flight met, one echelon just in front of the other, they let go. I heard the faint who-o-osh of the falling bombs and ducked, hugging the earth. They seemed to keep falling for ages, the swish growing louder and louder until I was sure I was a goner and then there was that familiar shake of the earth and dull boom of explosion. I raised my Rollei over my head, upside down so I could see the ground glass. I found the explosion—dirt and smoke and debris still

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flying high—and shot. As I sank back, I noticed a Chinese officer on the other side of the pond was digging in the bank behind him. In a minute he pulled out a piece of iron, still hot.

"If you had been standing up you would have caught this in the head," he said. "You'd better not try any more pictures if they come close again." I stayed flat for the rest of that half hour, the worst I've ever spent.

War coverage is not entirely spectacular work, though much of it is dangerous. The Sino-Japanese affair is a funny war—much of the area just behind the front is less dangerous and provides less spectacular material than the unprotected cities far to the rear which are subjected to heavy bombing. But there are plenty of human interest pictures in this near-the-front area. Shots of soldiers sleeping, eating, on the march, their headquarters life, and the wounded going back make a tragic, humorous or pathetic record of war, as the case may be.

Solarization Process

(Continued from page 31)

posure to a red (Wratten No. 2) safe-light, as given in the captions. Then the negatives were returned to the developer bath for 7 minutes in DK-50.

In the case of tray development in a solution that is not agitated, the diffusion of waste products around strongly exposed parts of a negative tends to produce silhouette effects. Outside the strongly exposed portion, development is partly retarded and the dense part of the image is surrounded by a thin transparent border known as *Mackie lines*.

When developing a negative on which we have photographed areas of equal brightness but of different dimensions, the smaller areas have the greatest density and the density of each area is greater at the edges than at the center. This is known as the *Eberhard effect*.

All of these characteristics are found in some degree on prints from pseudo-solarized negatives, and are the qualities that

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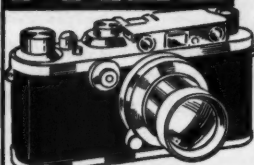
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mean most to photographers who want to try the method.

Plan the lighting and choice of subject matter in advance. Consider your subject for a solarized negative from two points of view: 1. What will be the effect of partial reversal on the final appearance of the print? If you have some rough-textured subject, remember that each surface roughness casts a small dark shadow that will appear white in the final print. If this "pocked" appearance is not to your liking, stick to smooth-surfaced objects, such as more or less normal human skin, simple pottery, fine-woven textiles, dull metal, and so on.

Light a rough surface so that the effect is of large masses, and the shadows that go to make up the surface effect are not conspicuous. If partial reversal will distort the surface effect unpleasantly, light the areas to reproduce as middle tone values, which tend to remain close to their original tones and do not show the effect of solarization.

2. Clear shadow areas (black in prints from ordinary negatives) become blocked-up light areas when partially reversed. That is, the second exposure acts with greatest effect on the unexposed parts of the negative, producing dense areas where the subject had shadows or dark areas. Highlight tones are seldom reversed. With this in mind choose subjects that will be enhanced by surrounding them with light instead of shadow in the final print. Light them so that any mass in which you care to preserve some semblance of photographic reality is a middle or light-middle value, and consider your shadows as part of the light pattern when composing the picture.

In Fig. 3, for example, the hand was spotlighted with an ordinary 500-watt mazda lamp in a stage spotlight. An elliptical area of light (seen as middle-gray in the print) was thrown against a middle-gray box, that was almost black in relation to the intense light on the hand three feet from the spotlight.

From comparison of the tones in this print, we may judge that the hand was

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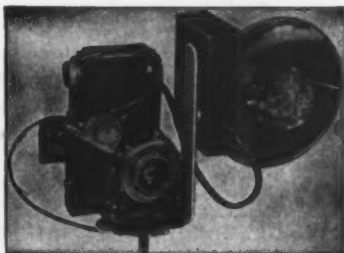


A. G. Alexander of Inglewood, California, just bought a Micromatic Speed Flash. The very first shots he made caused him to write: "They are the sharpest negatives I have ever seen. I have a jet black Cocker dog—the hardest thing to get detail. With the Speed Flash, every hair is perfect."

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rendered in the original negative in a gray-value about the same density as that of the spotlighted ellipse on the gray box.

When the negative was re-exposed, a moderate reversal of both the hand and the spotlight area of gray took place, and in the final print they appear as light middle grays. The outer area of the background, not lighted, remained unreduced silver halide until the second exposure. After that exposure the latent image there was reduced and this part of the film then had the highest density, printing pure white as was also the case with the cast shadow from the hand.

If, as in the present instance, the effect of startling "white shadows" is desired, no supplementary lights are necessary to "fill in" the shadows cast by the subject. However, with some light in the shadow areas, detail is preserved and the blank posterish quality is partly eliminated.

The writer prefers this method of negative treatment for posters or other subjects utilizing the startling effect of the Mackie lines (printing black in the positive), and the attention-getting punch that partial reversal gives to some kinds of surface treatment, as in Figs. 5 and 7.

Solarization tends to degrade halftones, and to produce a "flat"-printing negative. This indicates that considerable contrast in the light and dark areas of the subject will produce only moderate contrast in the finished print. One should not, however, light the subject so that the negative, if developed in the ordinary manner, would have chalked-up light areas. Light the subject for a brilliant negative but without excessive contrast. It should print well on medium-contrast enlarging paper with a soft-working developer such as D-72 diluted 1 to 4.

Faults and their correction. The commonest fault is to produce an image that is too faint to print, although the negative may be extremely dense. This may be caused by too short a first development or by too long a second exposure. In the case of paper negatives, it may be caused by too long a second development.

The negative should build up good silver deposits throughout the image before the second exposure is given.

The second development must be long enough for the waste-products of development to get in their "dirty work." This part of the process cannot be hurried; let the photo-chemical action take its own sweet time.

For production of paper negatives from contact positives, expose the print as usual, give it its first development, rinse in clear water, and expose to white light. Use the type of paper and exposure times given in this article. Return the paper to the original developer and allow to lie immersed until the entire surface is blackened.

For the final print from the paper negative, use only contrast papers such as Convira Extra-hard, Azo 4, or preferably 5.

The solarization process is fundamentally simple. Start by working with prints. After that, try solarizing negatives. Use one or two materials, keep a record of all development and exposure times, and you will be amazed with the startling effects you can produce at will by means of solarization.

How to Use Bulk Film

(Continued from page 65)

pieces of the black paper inserted with printing paper, held by a rubber band and placed in a small metal can, such as those which come with "ready made" 35 mm. rolls, and sealed with Scotch tape.

Loading can also be done in a lighted room by using a light-tight loader, which can be made by following the directions given below.

This loader consists of a light proof box with built-in facilities to handle the winding of the film. Its dimensions, 12"x12"x18", leave ample room for the necessary movements inside. The sides, back and bottom are cut from 12" white pine, 7/8" thick. See Fig. 6 for dimensions. Strips of black felt placed in the seams before the pieces are fastened together insure a light-proof job. Wood or heavy fiber board may be used for the top and rounded side.

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Make the holes for your hands six inches in diameter, large enough to allow the insertion of the largest film can. Hold the box so that the rounded end is up and mark the positions of the internal parts. These consist of a holder for the reel of film and a clamp to hold the cassette or cartridge firmly.

The film holder is made by sawing a semi-circular piece five inches in diameter out of a length of 2"x3" studding and lining the cradle formed with a pile fabric or other soft material. This lining can be put in with rubber or household cement. This piece is then nailed to the floor of the box about one inch from the left side.

A small shelf 1 1/2"x3" is then nailed to the back of the box twelve inches from the floor. It is cut from 7/8" white pine and braced with a piece of the same material. To this is fastened a large Easterbrook paper holder with flanged jaws after the finger grips have been bent—the lower one parallel with the axis of the clip and the upper one at about 45° from the axis.

A small crank to fit into the cartridge spool (see Fig. 7) completes the equipment.

Fit the hand holes with light-proof sleeves. These should be made from a heavy black pile fabric and should be long enough to reach above the elbows. The best way to attach them is to pass them through the holes and fasten to the inside of the box with adhesive tape or thumb tacks.

Then you're ready to load your film. Open as many cartridges as you expect to load. Remove one end cap from each and withdraw the spool. Remove the same end so that reassembly inside the loader will always be the same.

Attach a short piece of adhesive tape to each spool. Place the end caps, spools and jackets separately in small boxes in the bottom of the loader, together with a pair of scissors and the small crank. Then place the can of film in the loader.

Work your arms into the sleeves until they are past the elbow. Open the can of film and put the roll in the film cradle.

Place it so that it spools off on the upper side of the roll. Tape the film end to a cartridge spool, with the protruding end of the spool to the left. Replace the jacket and end cap and place the cartridge in the paper holder jaws (Fig. 3), which are held open by depressing the upper finger grip.

Insert the crank in the spool. Hold the film lightly by the edges and turn the crank toward the back of the box winding the film into the cartridge.

If the film is run lightly through the fingers of the left hand they will serve as a guide and maintain a slight tension while winding. Thirty turns will fill the cartridge; do not attempt to force more onto the spool. After 30 turns cut the film (Fig. 5) leaving about four inches as a leader.

Remove the crank and put the loaded cartridge into the bottom of the loader. Tape the film to a new spool and repeat.

No Camera Needed

(Continued from page 49)

the objects under the light source.

"Spring Cleaning," Fig. 1, tells its story with objects that are moved, dusted, or cleaned. The shade cord represents the shades, window curtains and draperies. The bulb is a reminder of the lighting fixtures, and the silver represents the small items in housecleaning. The distortion in the forks is done by placing them on a small glass ash tray. The shadow of the fork comes through the glass of the ash tray before reaching the paper and is thus distorted and diffused.

In Fig. 2, a pencil and a roll of picture wire spread across a great portion of the print represents the idea that much is written. The two small designs in the lower left hand corner symbolize the little that is worthwhile in all that is written. One of these was made with a thumbtack, the other with an eye level view finder set on its side.

The arrangements themselves must be, of necessity, wholly individualistic. In "Sweet, Girl Graduate," Fig. 4, a soft, rhythmic circle represents femininity. The

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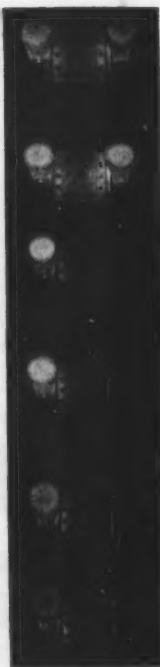
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straight white line and the angular shaped object represent the education she has just received. The square, combined with the small angular design, symbolizes geometry. The pancake turner and the safety pin suggest her future occupations — home and family.

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Color Photography Simplified

(Continued from page 60)

ber of exposures may be given. For example, suppose that the range of the subject were 1 to 10 and the latitude of the film 1 to 100. Any exposure which would land the ten tones of the subject somewhere within the range of the 100 tones would be satisfactory, whether from 1 to 10 or from 90 to 100.

Color film does not have this wide latitude. Its range is about equivalent to 1 to 10. It is necessary, therefore, that the exposure be "on the nose".

Some of the most satisfactory color pictures are composed of quiet colors with small accents of brilliant color. In a landscape, a figure wearing a red sweater, for example, may add the necessary note.

This means that subjects with very strongly illuminated highlights and deep shadows such as city streets at midday or a woodland on a brilliant day are poor color subjects. Little color can be seen in large

Dufaycolor Exposure Charts

FLOOD EXPOSURE TABLE

Lens openings for use with shutter at 1/2 second

Type of Bulb	No. of Bulbs in Reflectors	Distance from Lamp to Subject	3 ft.	6 ft.
Five Hour Wonderlite or No. 1 Photoflood Lamp	1	/2.8	
Five Hour Wonderlite or No. 1 Photoflood Lamp	2	/4	/2	
Ten Hour Wonderlite or No. 2 Photoflood Lamp	1	/4	/2	
Ten Hour Wonderlite or No. 2 Photoflood Lamp	2	/5.6	/2.8	

(No filter is necessary with the Wonderlite Dufaycolor Lamps, but a Dufaycolor Photoflood filter must be used with Photoflood Lamps.)

FLASH EXPOSURE TABLE

(For use with Superflash lamps No. 2 or Photoflash No. 21)

Dufaycolor film with Photoflash filter

No. of Bulbs in Reflectors	3 ft.	Distance from Lamp to Subject	6 ft.	9 ft.	12 ft.
1	/11	/5.6	/4	/2.8	
2	/16	/8	/5.6	/4	
4	/22	/11	/8	/5.6	

EXPOSURE CHART

For outdoor shots with Dufaycolor film

Light Conditions	Season	Lens Openings and Shutter Speeds						
		/3.5	/4	/4.5	/5.6	/8	/11	/16
Sky, Sea, beach and snow in brilliant sunlight.	Summer	1/300	1/200	1/150	1/100	1/50	1/25	1/10
	Winter	1/150	1/100	1/75	1/50	1/25	1/10	1/5
Outdoor subjects in brilliant sunlight except above.	Summer	1/150	1/100	1/75	1/50	1/25	1/10	1/5
	Winter	1/75	1/50	1/40	1/25	1/10	1/5	1/2
Outdoor subjects on bright days with sun obscured.	Summer	1/75	1/50	1/40	1/25	1/10	1/5	1/2
	Winter	1/40	1/25	1/20	1/10	1/5	1/2	1
Outdoor subjects on dull days.	Summer	1/40	1/25	1/20	1/10	1/5	1/2	1
	Winter	1/20	1/15	1/10	1/5	1/2	1	2

expanses of shadow, since light is necessary for the full effect of color. The color photographer must select his subject so that the colors take the place of lighting contrasts and then move around so that the lighting is flat or almost flat.

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Landscape subjects are popular but difficult, for large expanses are unsatisfactory when reduced to the size of the ordinary color picture. The effect of distance is better conveyed by including an interest in the foreground which occupies a large part of the picture.

In portraiture a soft, all-over lighting gives the best color results. Cosmetics should be used sparingly and the tendency to dress the subject in brilliant colors should be overcome, for facial tones and hair suffer by too great color contrast. Backgrounds, too, should be subdued in portraiture.

Pictures of flowers and details of gardens, street scenes with a distinctive color note in the foreground, harbors, and interiors are all good color subjects.

A good way to take your first pictures in color is to use the box camera method of exposing—with the sun falling directly on the subject. Shooting this way insures success in the beginning. This is using what is known as flat lighting or a general all-over lighting of the subject without shadows.

Dufaycolor is used outdoors without a filter except when shooting very distant scenes and over snow, water, and sand, when an ultraviolet filter is advisable. The great amount of red in artificial light makes the use of compensating filters mandatory. A 3R filter is used with Photoflood light, and a 4R filter with Mazda light. No filter is necessary with the Wonderlight. The above refers to roll film and packs.



"My, Mr. Germworthy, what a tremendous camera you must have used!"

Photography

TRADE NEWS

Adjustable Developing Tank

The new American-made, F-R Adjustable Roll Film Tank (\$1.85) is constructed of chemically resistant bakelite and non-corrosive stainless steel. The tank is adjustable for all popular sizes from 35 mm. up to and including 116.

Because of an inside loading feature, films may be developed in rapid succession irrespective of how wet the reel may be. A knurled agitating rod is built onto the reel and permits a thermometer to be used during development and agitation. A Double Flange selling for 50 cents extra permits the developing of two full-length rolls of 35 mm. film in the tank simultaneously.

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"Darkroom Aids"

Four contact printers (\$8 to \$29.75), two print presses (\$3.75 and \$10), and three enlarging easels (\$3.95 to \$9.75) are described and illustrated in the "Willdo Darkroom Aids" circular. Free copies of this circular are available from Willoughbys, 110 West 32nd St., New York City.

5 x 7 and 8 x 10 Easels

New enlarging easels (5 x 7 inch size, 85 cents; 8 x 10 inch, \$1.50) have just been put on the market by C. A. Brooks, 542 Main St., Cincinnati, O.

These easels are designed to put straight borders on these standard sizes of enlarging paper, making trimming unnecessary. A flat white surface is provided for focusing. The 5 x 7 inch size also makes half size (3 1/2 x 5 inch) prints. Write Brooks for descriptive circular.

Laborant 4 x 5 Enlarger

A new 4 x 5 inch Laborant Enlarger, announced by Optiko-Techna, features a 2 1/2 times bellows extension which permits reducing 4 x 5 negatives to miniature size. By rotating the lamphouse to horizontal position, wall or screen projection is possible. By reversing the enlarger for floor projection, enlargements of photo mural sizes can be obtained. Also, distortion in perspective can be eliminated.

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Chess-United Co., Emmett Building, Madison Ave. and 29th St., New York City, will supply full information on the entire Optiko-Techna line.

Dufaycolor Processing Laboratory

Dufaycolor processing is now being done by FasFoto Finishing Service, Reading Road, Cincinnati. This service decreases transit time for Western and Middle-western Dufaycolor users, making it unnecessary to send the film to New York for processing.

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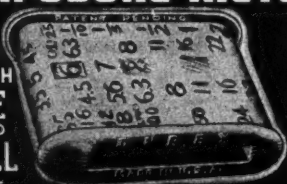
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Color Photography Make-up

The new Miner's Foto-Crome Make-Up Kit for Color (\$2.50, from Miner's, 12 East 12th St., New York City) contains all necessary make-up material (19 items) together with an instruction booklet, "Simplified Make-up For Color Photography."

For black and white photography, Miners recommend the Foto-Matic Make-Up Kit (\$2.50). Better tone values are obtained when proper make-up is used, and negative retouching is eliminated.

Miner's will be glad to send their instruction booklet free to all who send a 3c stamp to cover mailing cost.

Lerovisual Paper Developer

Lerovisual is a new paper developer that permits the exposing and developing of enlargements by inspection at the same time.

The enlarging paper is soaked in Lerovisual for thirty seconds, lifted by one corner, allowed to drain for a few moments, and placed, while wet, under the enlarger. The paper is exposed for ten seconds at a time and at the end of each exposure, the enlarger light is turned off and the print examined under the safe-light. When the exact density you want in each part of the print is obtained, the print is rinsed in clear water and placed in hypo.

This developer allows you to shade and dodge just as you want, allows you to get the correct exposure the first trial, even with films of varying density. It comes in powder form, \$1 for enough to make 32 fluid ozs. For information write the Whitville Co., Chrysler Building, New York City.

"In-Slip" Print Mounts

"In-Slip" mounts for both amateur and professional photographers have been introduced by Radio Wire Television, Inc., 100 Sixth Ave., New York City, (formerly known as Wholesale Radio Service Co.).

The mounts are available in twenty-two sizes, include types for both horizontal and vertical prints and are of white antique finished material. Window openings vary from 3 1/2" x 3 1/4" to 10 1/2" x 13 1/4".

Another series of Lafayette mounts is especially intended for exhibition prints. These mounts are also of white antique finished material and are entirely free from decorations of any kind. They are available for vertical and horizontal mounting of 8 x 10 and 11 x 14 inch prints.

Mini Flash Synchronizer

The MINI FLASH synchronizer (\$12.50, Berman-Meyers, Inc., 90 West St., New York City) is one of the smallest synchronizers yet produced. Complete with pen-light batteries it weighs only 10 ounces. The six-inch fan-type reflector is collapsible. Of aplanatic design, it will not throw a "hot spot" but provides uniformly distributed illumination.

"Piped Light"

The ability of the plastic lucite to "pipe" light is demonstrated at the New York World's Fair. John M. Rife of General Motors holds a light at one end of an "S" bar of lucite, and the light travels through the bar and throws a beam from the other end.

The "piped light" effect in this picture was obtained



by holding a flash gun with bulb at the end of the rod. The bulb was covered with a focusing cloth except for a small opening, to prevent stray light, and the free end of the rod was held at an angle against a white wall.

Fedco Print Dryer

The new Fedco Print Dryer (\$2.95) has a polished surface which gives prints a smooth, glossy finish and accommodates removable ferrotype plates. Measurements are 14 1/4 x 10 x 1 1/4 inches.



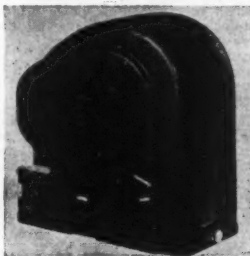
It uses 105 watts of current, either AC or DC. The canvas is washable and is held in place by a stretching device that holds the prints firmly in place.

Raygram Corp., 425 Fourth Avenue, New York, is the Eastern distributor

and Hornstein Photo Sales, 29 East Madison Street, Chicago, is the Mid-west distributor.

Viewer-Projector

A combined Viewer and Projector (\$39.50) for 2" transparencies is marketed by Craftsmen's Guild, 5773 Olympic Blvd., Los Angeles. When used as a viewer, a 4 1/4" image is thrown on a miniature screen within the viewer. The image is brightly illuminated and can be viewed in daylight without the need of a darkened room.



The viewer is changed into a projector by the turn of a knob, and gives a 20x28" image at seven feet, and a 36x52" image at thirteen feet.

A heat absorbing disc in the condensing lens system protects color films. Cooling is provided by use of natural draft ventilation. A

100-watt projection lamp is used, and a 4" projection lens.

Built of cast aluminum, with black finish, the Hollywood Viewer Projector measures 4 1/2 x 9 1/2 x 10". A carrying case is available, together with a slide file which fits into it and holds 100 slides.

Phaotron Exposure Meter

The new Phaotron Electric Exposure Meter (\$5), for both still and motion picture photography, measures light intensity without use of delicate meters or photo electric cells.

Full details may be had from the Phaotron Sales Co., Alhambra, Calif.

New Argus Exposure Meter

The Argus Vestpocket Exposure Meter (25 cents) is a new addition to the line of Argus accessories, made by The International Research Corp., Ann Arbor, Mich.

It is a celluloid wedge type meter, flat and small. A rotating wedge disc indicates the brightness of the object aimed at, while a sliding rule indicates the correct shutter speed and lens aperture to use. The film speeds are in Weston ratings.

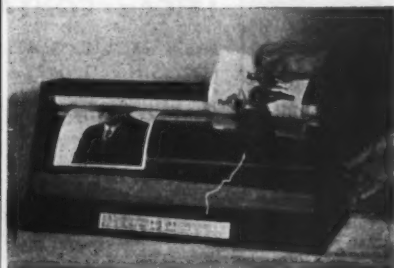
Argus Jig-A-Mat

The Argus Jig-A-Mat (\$6.75), for use in making photomontage pictures, is announced by The International Research Corp., Ann Arbor, Mich., makers of the Argus cameras.

The Jig-A-Mat resembles an ordinary 8x10 enlarging easel, but its top is covered by thirteen separate and differently shaped mats made of red bakelite and which can be arranged to form an almost unlimited number of montage combinations. Each mat has its number and indicator, so there can be no mistake as to the paper areas exposed and those to be exposed.

The New Roto Print Dryer

Amateur-Professional Model



Patents Pending

ELECTRIC ROTARY DRYER \$19.95
28"x24" chromium surface
For matte and glossy prints. 230 watts, 115

Place matte or squeegee glossy prints onto the chromium uniformly heated drum—turn the hand—in 4 to 8 minutes will dry forty 3"x5" or four 11"x14" glossy or matte prints.
6 yr. guaranteed heating element can't overheat. Fresh-air drying belt keeps prints flat. All essential features.

12"x28" Amateur Model, \$9.95 complete.

Order now for the rush season. At your dealers or write our Department M.
Distributors: Eastern—Rikay Photo Products, Newark, N. J.; West Coast—Craig Movie Supply, Los Angeles, Calif.; Mid-West dealers—Write direct to

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Telescopes

A new line of telescopes by Wollensak Optical Company, Rochester, New York, the *Vari-Power*, these telescopes offer the user a battery of telescopes in one instrument. The 15x40, for example, supplies powers of 15x, 20x, 25x, 30x, 35x and 40x. The change of powers is made by drawing the power (eye) tube in or out. Markings on the tube, in steps of 5x, make the process fast, exact and free from guesswork. Other models are 5x20, 10x30 and 20x50; these figures indicating the minimum and maximum powers of the respective models.



All models are claimed to be equally sharp at all indicated powers, are dust-proof and moisture-proof, and have chrome-plated rust-proof tubes. Each *Vari-Power* is supplied in a case.

Ferrotypes and Chromium Polish

The Lafayette Camera Corporation, 100 Sixth Avenue, New York City, offers a new polish for black enamel and chromium ferrotypes plates which is effective and economical.

Applied sparingly to the plate and wiped dry it provides an even wax coating which aids materially in avoiding the mottled effect so common in glossy prints, and in indefinitely prolonging the useful life of the plates. It is strictly non-inflammable.

Cine Tripod

The Cine Tripod, Unit No. 60 (\$11.50, Raygram Corp., 425 Fourth Ave., New York City), consists of a two-section chromium plated steel tripod and the new Raygram Swing-Tilt-Pan head. It will accommodate any weight camera. Measurement when folded is 32"; extended, 5 feet. The Swing-Tilt-Pan head tilts forward, backward, and sideways, and adds 6" to height. A calibrated pan table is provided.

New 16 mm. Movie Projector

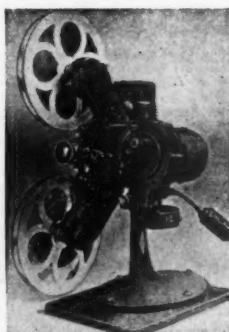
A NEW BELL & HOWELL projector, called the "Filmaster," is entirely gear-driven. It has no belts or chains inside or out. The gears are enclosed by rigid aluminum-alloy die castings and are said to be exceptionally silent.

The lens furnished—a 2-inch f/1.6, same as supplied with higher priced B & H machines—is instantly interchangeable with eight different focal length lenses. Standard lens and lamp illumination is increased considerably by a Magnilite condenser. A lamp switch permits turning the lamp off during film rewinding. Either 300, 400, 500 or 700-watt line voltage lamp may be used.

A pilot-light illuminates the Filmaster projector mechanism when required. A thumb-screw tilts projector either up or down. The film is run backward simply by throwing a lever. By disengaging the clutch any single film frame may be projected as a still picture, protected from heat by an automatic safety shutter. Reels furnished are 400 ft. 16mm. film capacity.

The projector is finished in dark brown, crinkle-baked enamel. Fittings are of brown bakelite and polished nickel plate.

Carrying case is regularly furnished. Like all Bell & Howell projectors, the Filmaster is covered by the B&H lifetime guarantee against defects in materials or workmanship. The price, within the United States, is \$199.00.



Dallmeyer Lenses for Movie Amateurs

A line of Dallmeyer lenses for movie amateurs is announced by Henry Herbert, 483-485 Fifth Ave., New York City. The 8 mm. lenses fit either Bell and Howell or Keystone cameras, also the 8 mm. Bolex and the Emil cameras.

The 16 mm. lenses are mainly supplied in C mounts, and will fit most movie cameras.

8mm. Lenses—	
13mm. f/1.9 for Keystone.....	\$ 60.00
13mm. f/1.9 for Filmo.....	65.00
15mm. f/1.5 for Keystone.....	63.00
15mm. f/1.5 for Filmo.....	69.00
1" f/1.9 for Keystone.....	40.00
1" f/1.9 for Filmo.....	45.00
1 1/2" f/4 for Keystone.....	35.00
2" f/1.9 for Keystone.....	38.50
2" f/1.9 for Filmo.....	60.50
4" f/1.9 for Filmo.....	63.50
16mm. Lenses—	
15mm. f/1.5 in C Mount.....	\$ 63.50
1" f/1.9 in C Mount.....	40.00
2" f/1.9 in C Mount.....	60.50
3" f/2.9 in C Mount.....	69.00
4" f/4 in C Mount.....	54.00

New Graphic Speedgun

A new Speedgun for synchronizing both the front and rear shutter of the Miniature Speed Graphic, manufactured by Speedgun Corp. of America, is distributed exclusively by Folmer Graflex Corp., 154 Clarissa St., Rochester, N. Y.



Miniature Graphic with Deluxe C Jr. Speedgun.

This new Speedgun, Deluxe "C" Jr., is similar to the C Deluxe model for the larger Graphics. Its tripper attaches to the front standard by removing and replacing the knurled thumb screw at the right side of the rising and falling front. Once the bracket supporting the tripping unit is positioned, the magnetic unit may be easily removed or replaced.

The battery case, usually mounted on a bracket over the synchronized range finder, is made in two parts. It provides built-in outlets for cable release operation, for electrical remote control, and for flashing auxiliary bulbs. Both front and rear shutter may be hooked up at the same time.

Complete with 2-piece, 2 or 3 cell battery case, magnetic tripping unit, 3 cells, moisture-proof pouch, and 5" adjustable Aplanatic reflector, Deluxe "C" Jr. lists at \$19. With 7" adjustable Aplanatic reflector, \$20. Accessories are also available.

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Foto-Crome MAKE-UP

For Color Film

No more disappointing results with color film! Now you can reproduce true skin tones by making up your portrait subjects with MINER'S amazing new FOTO-CROME MAKE-UP.

All the necessary make-up is included in the new FOTO-CROME MAKE-UP KIT. Kit contains 19 different make-up items in shades specially developed to synchronize with standard color film. Interesting instruction booklet, "Simplified Make-up for Color Photography," tells you how—easily and quickly.

MINER'S Foto-Crome MAKE-UP KIT

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MINER'S, 12 E. 12th St., Dept. CM10 New York, N. Y.
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- LEICA G, chrome, f2 Summar, E. S. Case, as new \$129.50
- LEICA Iiib, chrome, f3.5 Xenon, as new..... \$129.50
- LEICA II, f2, as new..... \$75.00
- DOLLINA II, f2.5, coupled r-f, Comp. Rap., NEW..... \$2.50
- S. S. DOLLY, f2.8 Tessar, Comp. Rap., coupled r-f, Bulbin exposure meter, NEW..... \$4.50
- V. P. DOLLY, f3.5, Compur, NEW \$22.50, same with f4.5 Varic..... 14.50
- FOTH ENLARGES, f3.5, double condensers, NEW..... 19.50
- WIRGIN 35mm., f2.9, Prontor II shutter, NEW..... 21.00
- WIRGIN 35mm., f4.5, Soto shutter, NEW..... 12.00
- VOIGTLANDER BRILLIANT, f7.7, NEW..... 7.75
- VOIGT, BESSA, 4.5 Voigtar, Prontor II shutter, NEW..... 15.00

• All New Except As Shown. • Fully Guaranteed.

Hundreds of Others—Write TODAY!

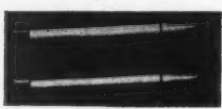
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Movie Film Splicing

Two items (\$1.50 each) for movie film splicing are Rapidoff, for moistening and removing film emulsion, and Rapidon for applying adhesive to the film. Each is similar in shape and size to a fountain pen, and each has a flattened point like that of a screwdriver.

The inside of Rapidoff is hollow, so that it may be filled with water. By pressing down on the point, the water is released, and the film moistened. Then, with the point, the emulsion is scraped off the film. The Rapidon operates in a similar manner, except that it contains the adhesive. By pressing down the adhesive is released, and may be spread by the point of the pen.



An adhesive fluid called Fluidon is marketed for use with these items; price per ounce is 25 cents. A set of Rapidoff and Rapidon, with a stand similar to a fountain-pen desk stand, sells for \$3.00. For further details, see your local dealer or write to Beesbe Products Corp., Trenton, N. J.

Ka-I-Ko Automatic Timefinder

The new Ka-I-Ko Automatic Timefinder finds the correct exposure for enlargements and then automatically times the enlargement. It may be coupled to any enlarger, used with any negative and any paper.

For further details inquire at your local dealer, or Ka-I-Ko Photo Products, 39 Bartlett St., Brooklyn, N. Y.

Flash Bulb Improvements



Wabash Superflash Photolamps now incorporate an invisible safety jacket, designed to check bursting and shattering. The safety jacket consists of invisible, double-film-walls inside and outside of the glass bulb.

The photo at left shows the new safety Superflash; at right, the same safety Superflash after it was thrown full force against a wall. While it cracked and dented, it did not shatter and every bit of broken glass was held inside its safety jacket.

The neck of every Superflash is protected against heat and cracking by an asbestos safety disc which also keeps the flash element in correct position. A blue safety spot is a visible check on the safety-to-use of every bulb; the spot automatically turns pink if a defect develops.

"Contact-flashing" has also been eliminated; the new Safety Superflash can be flashed only by direct application of current, and cannot be flashed accidentally by contact with other bulbs or by outside electrical power.

Superflash bulbs are made with hydronalium, which is claimed to produce an extra long peak-light flash. This long flash duration compensates for improper shutter or synchronizer adjustments, and is especially desirable for use with focal plane shutters. The No. 2A size has a full 1/16th second flash duration.

Complete data on these improvements and on the entire line are listed in the Wabash bulletin No. 715P, a copy of which is available from Wabash Photolamp Corp., Brooklyn, N. Y.

Abe Cohen's Exchange

The advertisement of Abe Cohen's Exchange in September MINICAM, advertising the Ideal Enlarger at a special close-out price of \$34.50, appeared as follows: "Two dollar allowance for old equipment." This was due to a typographical error and should have read, "Top dollar allowance for old equipment."



By VICTOR H. WASSON

A SET of cranium crushing questions concerning photographic chemistry

1. Now, it being human to err, let's suppose you poured developer in your tank, then discovered it was four degrees too warm, what would you do?

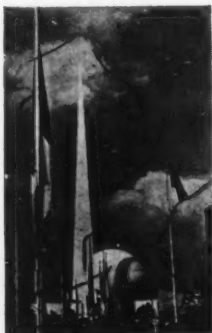
- Pour in a little 10% bromide solution?
- Add ice water?
- Shorten development time?
- Eliminate agitation?

2. A formula calls for a 10% solution of one chemical or another so often that you should really know how to make one. It consists of—

- one oz. of solid to ten fluid oz. of water;
- one oz. of solid to nine and one-eighth oz. water;
- one oz. solid to ten oz. of water by weight.

3. And while on the topic, a saturated solution is one, in which—

- a dry chemical is saturated with water;
- dry chemicals are dissolved in water until no more will dissolve;
- one solution is poured into another until the first becomes saturated with the second.



4. Here's a print that always comes out with **BLACK** thread-like marks on it. How come?

- Foreign matter in the camera?
- Lint on the enlarger plates?
- Threads or undissolved chemicals in the solutions?
- Bare metal coming in

contact with solutions from chipped trays?

5. There are numerous substances that have photographic uses, but which are not as

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on how to develop better
pictures with less effort

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SALONS TO ENTER

Closing Date	Name of Salon	Number of Prints and Entry Fee		For Entry Blank, Write to
October 28	Fourth Annual 100-Print Travel Salon	4	\$1.00	Julian Hlatt, Secretary, 4th Annual 100-Print Travel Salon, 1776 Ohio Ave., Long Beach, Calif.
October 30	Third Rhode Island National Salon	4	\$1.00	Alfred J. Viera, Salon Chairman, Camera Club of Rhode Island, 103 Westminster St., Providence, R. I.
November 4	Eighth Annual Minneapolis Salon	4	\$1.00	C. T. Silversen, Salon Director, Minneapolis Camera Club, 113 South Sixth St., Minneapolis, Minn.
December 1	23rd Annual International Salon, Los Angeles Camera Pictorialists	4	\$1.00	Larry Lewin, Secretary, Los Angeles Museum, Exposition Park, Los Angeles, Calif.
December 6	Second Annual Springfield International Salon	4	\$1.00	Salon Secretary, Springfield International Salon, George Walter Vincent Smith Art Gallery, Springfield, Mass.
December 6	Second Western Pennsylvania Salon	4	\$1.00	W. C. Munhall, Greater Pittsburgh Photographic Society, Inc., 210 E. Park Way, N. S. Pittsburgh, Pa.
December 12	Third Southern Salon (Second International)	4	\$1.00	H. W. Newsome, Chairman Salon Committee, Norfolk Photographic Club, Museum, of Arts and Sciences, Norfolk, Va.
December 14	Fifth Rochester International Salon	4 monotone prints, 8 color prints, 6 natural color transparencies—\$1.00		John McMaster, Memorial Art Gallery, Rochester, N. Y.
December 15	Fifth Des Moines International Salon	4	\$1.00	Leon H. Smith, Y. M. C. A., Des Moines, Iowa
December 31	First Annual Boston International Salon of Nature Photography	10 (five \$1.00 classifications)		Bradford Washburn, Chairman Salon Committee, International Salon of Nature Photography, 234 Berkeley St., Boston, Mass.

common as others. Can you match them with their uses listed at the right?

- Pinacryptol green* is used in
- Pyrogallie acid* is used in
- Potassium Bichromate* is used in
- Potassium Ferricyanide* is used in
- Formaldehyde* is used in
- Chromium* is used in


- Bleaches*
- Desensitizers*
- Hardeners*
- Intensifiers*
- Developers*
- Farmer's reducer*

- After the smoke has cleared away you will at least have a bit of useful information out of this one.

To convert Centigrade to Fahrenheit do you—

- multiply by 9, divide by 5, and add 32 or
- subtract 32, multiply by 5, and divide by 9, or is that to convert Fahrenheit to Centigrade?

(See answers to "Kamera Kuiz" on page 96)



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Atlanta, Ga.	High Museum of Art	Oct. 1 to 15	Atlanta National Amateur Salon
Loudonville, O.	Zion Lutheran Church (Basement)	Oct. 16 (Third Monday evening of each month)	Members' Show, Loudonville Camera Club
Loudonville, O.	Free Street Fair	Oct. 3, 4, 5	Photographic Salon, entries from five Ohio counties
New York City	Manhattan Camera Club, 310 Riverside Drive	Oct. 16 and 23; 8:30 p. m.	Travelling Salon of Maple Bluffs Camera Club
Parkersburg, W. Va.	Chancellor Hotel Ballroom, 7th and Market Sts.	Oct. 7 and 8; 10 a. m. to 10 p. m.	Lens Artists' First Annual Photography Salon

"Where to Find Good Pictures" is the first of the series of articles by Leo Nejelski which will appear in MINICAM beginning next month.



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Answers to

KAMERA KWIZ

1. Shortening the development time will in some measure compensate for excess temperature of the developer.
2. One ounce of solid to 9 1/8 ounces of water.
3. Dry chemicals are dissolved in water until no more will dissolve.
4. Foreign matter in the camera prevents light from reaching the negative thus leaving underexposed areas that will print black. These particles need not be only in the corners as the film in its passage through the camera will pick up dust, lint, etc.
5. Pinacryptol green is used in desensitizers. Pyrogalllic acid is used in developers. Potassium Bichromate is used in bleaches. Potassium Ferricyanide is used in Farmer's reducer. Formaldehyde is used in hardeners. Chromium is used in intensifiers.
6. Method a converts Centigrade to Fahrenheit. Method b converts Fahrenheit to Centigrade.

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Book Reviews

NEW PATHS IN PHOTOGRAPHY, by Andreas Feininger. 64 pages, 47 full-page illustrations. American Photographic Publishing Company.

Andreas Feininger has the knack of stimulating in his reader a desire to create something new with his photographic knowledge. He distinguishes between the oldest concept of photography under which pictures merited praise in relation to their similarity to the original or to a painting, and the newer concept in which photographs are valuable in proportion to the perfection of their originator's arrangement of light and shade, lines and masses, spacing and proportions.

The techniques in this new, creative form include direct projection, negative prints, negative-on-diapositive, granulation, solarization, and any combination of these.

FASCINATING FREAKS IN PHOTOGRAPHY, by Marcel Natkin, D. Sc. Illustrations by Pierre Boucher. 72 pages, 73 illustrations, 13 sketches. The Fountain Press. "Fakes" in photography comprehend more

than the idea of falsification or amusement. An outcome of the modern method of photographic interpretation, they are dynamic and iconoclastic with a value of their own. Early exponents disguised their faking. Today faking is acknowledged and affirmed under the name of synthesis.

The author gives a working knowledge of the methods used in making shadowgrams, smears, screened photographs, reliefs, bas-reliefs, photomontage, distortions, solarization, and the shutter secrets which permit the suggestion of movement, multiple impressions, and the elimination of movement in pictures.

Photomontage is covered in this subject thoroughly, including all the recognized forms—cut-outs, composition, superposition, superposition with a mask, superimpression, combined superposition and superimpression, repetition of a negative, double printing, and photomontage by combination.

This book is valuable to every photographer who enjoys darkroom experimenting.



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Index to MINICAM

An index covering MINICAM Magazine, Volume 2, September 1933 through August 1939 is available at ten cents the copy; or free with a \$2.50 one year subscription or renewal.

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??? QUESTIONS ??? to the Editor

Q. Is it possible to look through a filter at a scene to see the effect obtained before putting the filter on the camera?

Ans. No, because the sensitivity to color is not the same for film as for the human eye. Shadows are especially deceptive. Film does not see as much detail in the shadows as does the eye.

For viewing purposes, special filters are made. These are usually blue or violet in color. Looking at a scene through one of these viewing glasses shows the tones of the subject as the emulsion sees it.

Q. How can the effect of haze be emphasized in a landscape scene?

Ans. The reflection of light from particles of moisture and dust in the atmosphere causes the sky to appear blue. It also causes haze. The light reflected is largely blue. A light blue filter will cause the blue to appear light on the print, thus increasing the effect of the haze. Orthochromatic film (being more sensitive than pan to blue) also emphasizes haze. Ordinarily it is desired not to increase but to minimize the effect of haze and for this purpose a light yellow filter is used.

Q. What filters or attachments may be used to record sunsets?

Ans. The great amount of red light at sunset requires a panchromatic film such as Agfa Supreme or Panatomic X, which are sensitive to red. Use with a K2 (yellow) or G (orange) filter.

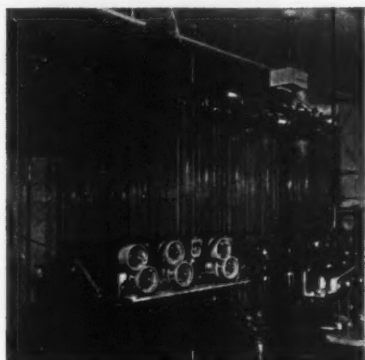
Q. What do the terms "Scheiner" and "Weston" mean?

Ans. There are two speed ratings of film in common use today—Weston and Scheiner. These speed values do not have any relationship theoretically because Weston is based on factors which give normal exposure, while Scheiner values are determined by a measurement of the weakest possible light which will affect the emulsion.

For practical use, the following conversion table is used:

American Scheiner Degree	Weston No.	American Scheiner Degree	Weston No.
18	8	25	40
19	10	26	50
20	12	27	64
21	16	28	80
22	20	29	100
23	24	30	128
24	32		

MINI-PHOTOS BY THE MILE



MILES of 35 mm. film go through this developing machine (left). The mechanism has been raised to show the spools over which the film is drawn. The six larger rollers at the left center are sponges which remove excess water before the film continues to the drying cabinet. FIG. 1



CONSTANT checkups provide scientifically consistent results. FIG. 2

Hollywood processing methods produce both quantity and quality

By FRANK MITTAUER

HOLLYWOOD'S motion-picture photography, as exemplified in the 500-odd feature-length films shipped from California each year, is generally considered the world's best. For the excellence of this work, credit is due not only to the cameraman, but also to the technicians who process his work. Little has been told of how the motion picture industry develops its film.

One of the most modern of processing laboratories, erected soon after silent films went out, is the two-story, reinforced concrete structure set off on one corner of the Twentieth Century-Fox lot. Dust, the bane of those who must work with 35 mm. film, is kept out of the building by an air-conditioning system.

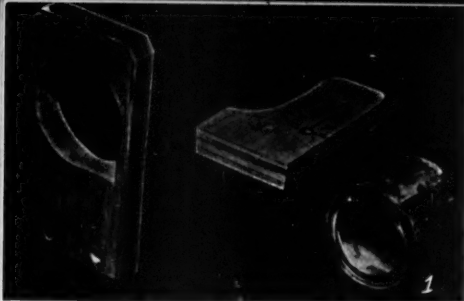
The developing machines are huge tanks, so arranged that the film running through them is kept in continuous motion. The laboratory is equipped with an auxiliary power plant which switches on automatically when the regular power

fails. This stand-by power plant, operated by an automobile engine, is a vital part of the laboratory's equipment. Without it, a two-minute interruption of electrical service would mean the ruination of all the film in process of development. The whole auxiliary system more than paid for itself last winter, when floods plunged most of Los Angeles in darkness for hours.

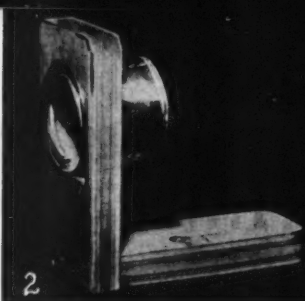
Once received at the laboratory, the reels of exposed film are handed into the tile-lined darkroom through a light-tight door. Unsealed and spliced to the long leader strip which runs through the developing machine, the film then proceeds at the rate of 90 feet per minute on its hour-

(Page 103, please)

Ciniscam
A MEMBER COMPANY OF THE CINEMA GROUP



1
PARTS OF THE EFFECT BOX. The rim of the can is partially cut away and the hole in the ply wood extended in the lower right side. The removal of this material makes possible a clear view through the finder.



2
THE ASSEMBLED WOOD-EN PARTS form a base for the camera and an upright to hold the can.

Easily-constructed Effect Box produces PROFESSIONAL EFFECTS WITH ANY CAMERA

By VICTOR H. WASSON

Author's Illustrations

3
THE CAMERA is se-
cured to the base by
a $\frac{3}{8}$ " bolt which screws
into the tripod socket.
A $\frac{1}{4}$ " hole is drilled
in the base and the
tripod screw threaded
into it. A tripod is es-
sential for steady mov-
ies, especially when
creating special ef-
fects.

4
OPERATOR about to rotate
effect disc which will produce
a fade when the opening in
the card passes from in front
of the lens.

5
FRONT VIEW of operator
using double masks. When the
control cord is drawn down,
the two discs will be rotated
in opposite directions thus
creating an effect which de-
pends on the shape of the
opening in the masks.

6
THE SIMPLEST MASKING
DISC is one containing a
single, round hole which co-
incides with the lens shade.

7
WHEN ROTATED, the open-
ing moves away from the lens
creating a fade. A fade is
the basis for a lap dissolve
in which a new scene seems
to melt into view through the
fading image of the previous
scene. To create it simply
fade out one scene, rewind
the film a foot or two (a
changing bag is helpful if
your camera has no provision
for rewinding), then photo-
graph the new scene on the
same film, starting with a
fade IN, so that somewhere
along the line the two will
merge, one increasing, the
other diminishing in brillian-
ce from that point until the new
scene is predominant and the
old has faded from view.

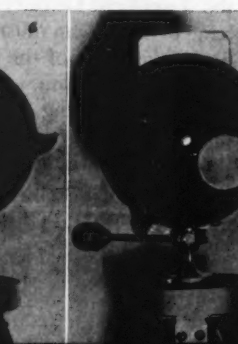
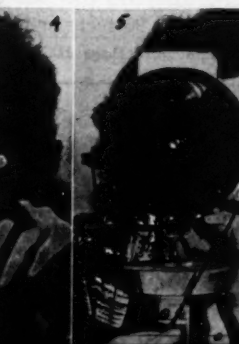
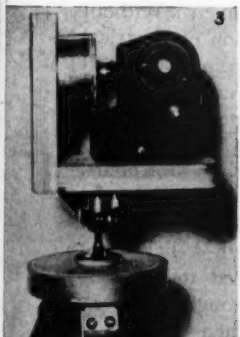
A GOODLY number of the apparently mi-
raculous effects produced in the Holly-
wood studios are achieved through the use of
a device known as a "matte box," or "effect
box."

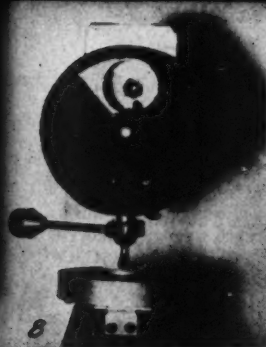
Actually, it is an oversized lens shade with
built in means for controlling the light that
reaches the lens, so that any portion of the
scene may be masked out while another is
photographed. Wipes, fades, dissolves, and such
are all products of the effect box. There is
no mystery about the procedure, as you will
soon see. The magic doesn't show up until you
project the results on your screen.

To build one, all that is needed is an empty
quarter pint paint can, two pieces of five-ply
wood and the ordinary tools found around the
house.

First punch a hole in the center of the bot-
tom of the can and enlarge it until it will just
take your camera lens. Insert the lens in
the hole and squint through the view finder. If
the finder is so situated that the can does not
obscure the view skip this next part.

However, should there be any part of the can
visible through the finder, take a pencil and,
following the outline made by the finder frame,
mark the can so that when this portion of it





8
A VARIATION OF THE SINGLE ROUND HOLE MASK. Simply extend the hole to a line drawn at a tangent to the circular hole, extending radially from the center of the mask. When rotated this produces a wipe off with a sweeping, fan-like motion. Rotate it backwards and the scene wipes ON.



9
A PEAR-SHAPED APERTURE with the small pointed end midway between the axis and the edge of the disc will wipe off from top and bottom of the frame, toward the center. Reversing the direction of rotation wipes ON from the center toward top and bottom.



10
ANOTHER PEAR-SHAPED OPENING, but with the small, pointed end the same distance from the axis as the lower side of the lens shade. When rotated it wipes off from the top only. Reversing the motion of the disc wipes on.



11
KEYHOLE AND BINOCULAR effect apertures are cut in the same mask. There are an infinite number of possible designs, hearts, diamonds, stars, crescents, etc. that may be cut into a mask, the desired one is rotated to a position in front of the lens shade the same as various lenses are placed in position on a turret mount.

12
STARTING WITH THE TOP, these apertures will expose first, the upper right quarter of a scene, second, the lower right quarter, third, the upper left quarter and last the lower left quarter. With this mask a scene or series of scenes is exposed through one aperture. Then the film is re-wound and reshot through another aperture. This is repeated until the film has been exposed through each of the four apertures. It may sound like a lot of work but the result will be something rarely seen in amateur movies, a four section montage IN MOTION. For a particularly novel effect place a second thumbtack in the mark to hold the proper opening in place, and mount one of the rotating fading discs over it. Then fade the sections of the moving montage in and out when the changes of scene occur.

13
THE DISC EXPOSES HALF FRAMES. At the top is the aperture to expose the left half of the scene, second, the upper half, next, the lower half, and last the right half. This makes possible scenes in which people talk to themselves, shake hands with themselves, etc. Stand the subject before a black background and shoot through one aperture, rewind, move him over and reshoot through the other half. If you want him to talk and act with a ghost of himself, pose him in front of an ordinary background. Make one figure a double exposure with the background showing through and the other an ordinary shot. It is important that the camera is not moved between scenes or the artifice will be detected. Bolt it solidly to a firm support. A two-section montage is also made with this mask, using the same method as with the quarter apertures.

is removed a clear view will be possible. It may be found that after removing part of the bottom, the view will be obstructed by the rim of the can into which the friction lid was fitted. If so, remove this also, so that an unimpeded view is obtained. Under no circumstances remove any of the sidewalls of the can, since this will admit light and spoil the effects we are to achieve. Even if the sidewall should pass directly in front of the finder, it will appear only as a line a few thousandths of an inch thick and can be disregarded during filming.

14
DOUBLE MASKS create effects which appear from each side of the scene in equal intensity and at the same time. This one consists of two masks, one with the lug at the left, the other at the right and controlled by a cord running to both.

15
WHEN THE CORD is drawn down the two masks rotate in opposite directions, the holes obscuring the lens shade and each other thus fading the scene from each side toward the center.

Now lay the can at one end of a piece of five-ply wood, three inches wide and



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six or seven inches long. Draw a line around the can and cut out along this line, leaving a hole into which the can will fit snugly.

Force the can into the hole and place it over the lens as before. It may now be discovered that it will be necessary to remove part of the wood to secure a clear view. Cut away the material necessary to get an unobstructed view and replace the can.

Stand the camera on another piece of five-ply wood the same size as the first one. Move the piece containing the can into such a position that it may be fastened to the piece holding the camera so that the lens comes into the hole in the can. See figs. 1 and 2. Two and a half inch wood screw and a little glue do an excellent job of joining. A three-eighths S. A. E. cap screw through the bottom piece of plywood and into the tripod socket makes the unit as sturdy as one could wish. The dimensions of the base and upright will vary in some instances, but those given will cover the requirements of nearly all the home movie cameras.

A quarter pint can is the correct size for all 8 mm. cameras with half inch lenses and 16 mm. cameras with one inch lenses. Since the can is only two or two and one-half inches deep and the field covered at this distance by a one-inch lens is less than one and one-quarter by seven eighths inches, the two inch opening in the can is ample.

All the effects are produced by rotating cardboard discs of heavy black showcard containing differently shaped holes in front of the opening of the can, which has by now become a very efficient lens shade. The various shapes of the holes are illustrated in figs. 4 to 15.

A five and one-half inch disc is ideal. These are cut with a lug on one side for the operator's finger. With the aperture in the disc coinciding with the lens shade, a thumb tack is pushed through the center of the disc into the wooden lens-shade support. This allows rotation while the camera is running, thus changing the shape of the aperture in front of the lens.

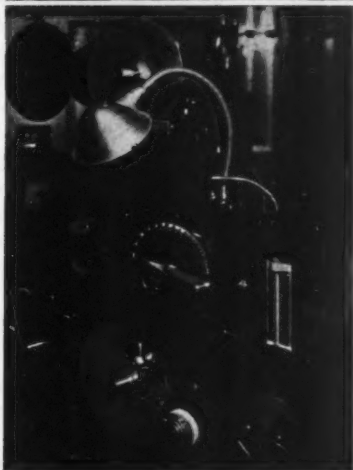
The shape of this aperture will determine the effect on the finished film. Don't attempt to cut the apertures with scissors, use a razor blade. If your card is not black all the way through, blacken the edges of your cuts with india ink.

A coat of dead black paint inside the lens shade will kill unwanted reflections while a coat of enamel outside improves the appearance.

The number and complexity of the effects you can produce is limited only by the number of masks and the ingenuity you display in thinking up new ones. Try out those shown in the illustrations, then cut yourself some new ones.

Mini Photos by the Mile

(Continued from page 99)



THE NIGHTLY "MIX" in one laboratory is from 500 to 600 gallons of developer (top). This is used to replenish the big batch of 2000 gallons mixed once a week. This laboratory buys its metal by the barrel, its Hydroquinone by the ton and its Hypo by the carload. FIG. 3

A PRINTING MACHINE (lower). Here the pictures and the sound track, carried on two separate negatives, are printed on one positive. FIG. 4

long, mile-long journey through the tank, guided by thousands of spools.

First the film is led through three vats of developer. Then, after being rinsed in two tanks of pure water, it is conducted under and over another series of spools through three tanks containing the acid fixing bath. From these more batteries of



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spools lead it through the five tanks of water where it receives its final washing. Still moving at the same rate, the film then wends its way between several pairs of absorbent rollers which remove excess moisture, before completing its journey in the washed, dry air of the machine's drying cabinet. Sixty minutes from the time it was handed into the laboratory, the negative emerges from the opposite end of the 50-foot developing machine, ready for printing.

Simultaneously, the negative upon which the sound has been recorded goes through development in the laboratory, the processing being done by a machine identical with and parallel to that handling the regular negative. The processing agents used are not the same, however. The pictures proper are developed in a borax fine-grain developer of moderate strength. The sound track is developed in either a very weak borax or a strong carbonate solution, depending upon the system by which it was recorded.

Both sound track and visual images now go to the printing room, which is situated at the so-called "dry" end of the developing room—the end where the processed negatives emerge from the developing machines. In the printing room at 20th Century-Fox is a battery of 18 machines to transfer the negative images to positive film stock. (Fig. 4.)

During the printing process, the negatives of both visual and sound images are exposed on one positive. When the positive is developed, the sound image appears in a narrow space to the left of the pictures proper.

Fig. 1 shows a close-up view of the machine used to process positives. The mechanism has been raised so that the hundreds of spools provided to conduct the film through various solutions are made visible. The six larger rollers at the left center are covered with an absorbent material meant to remove surplus water from the film before it begins its journey through the drying cabinet. In the background is a machine with the roller as-

sembly completely drawn up to show the way the leader strip draws the film through the tanks. The darkroom containing these machines is next to that where the negatives are developed. Its "dry" end, however, is located at the opposite end of the building, so that the finished positives emerge from the laboratory only a few feet from where the exposed film is received.

The whole developing process, carried on under an exceedingly faint green safe light which has no effect on the fast panchromatic stock used, takes about two hours. During that time the photographic images have been in almost constant motion; first at 90 feet a minute through the developing machine as negatives; then through the printers at speeds of from 16 to 70 feet a minute, depending on the sensitivity of the positive material used; then again at 90 feet a minute as the positive is developed. No wonder the prints of their previous day's shooting provided for directors and production executives are called "rushes." And no wonder newsreels are on view in theaters by the time most of the people who saw the cameraman working get home.

The developer in the machines is not renewed each day. Instead, new chemicals are added to replenish the solution. Experience has shown that a developing solution thus kept up to par is superior to a freshly-mixed one.

The fixing bath is kept efficient not only by the addition of chemicals, but also by the constant electrolytic removal from it of the silver it takes from the film emulsion in the form of salts. The used fixing bath is carried between two electrically charged carbon blocks; the silver is deposited in semi-metallic form on the positively charged electrode. On an average day some 15 pounds of the metal are thus collected. With silver worth 45 cents an ounce, the money saved the studio through this salvaging process foots up in a year's time to around \$35,000; approximately enough to cover the cost of the chemicals used.

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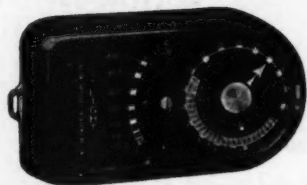
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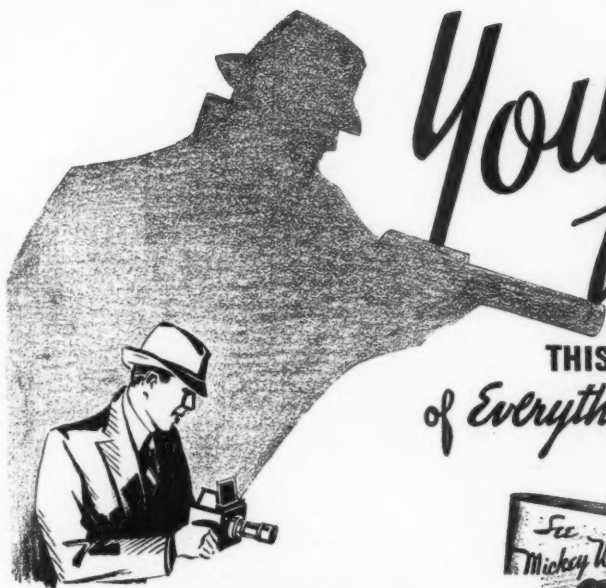
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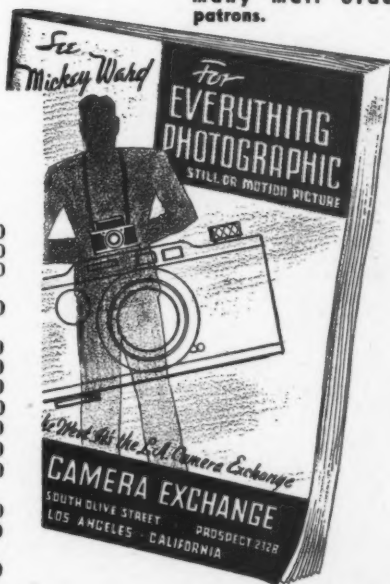
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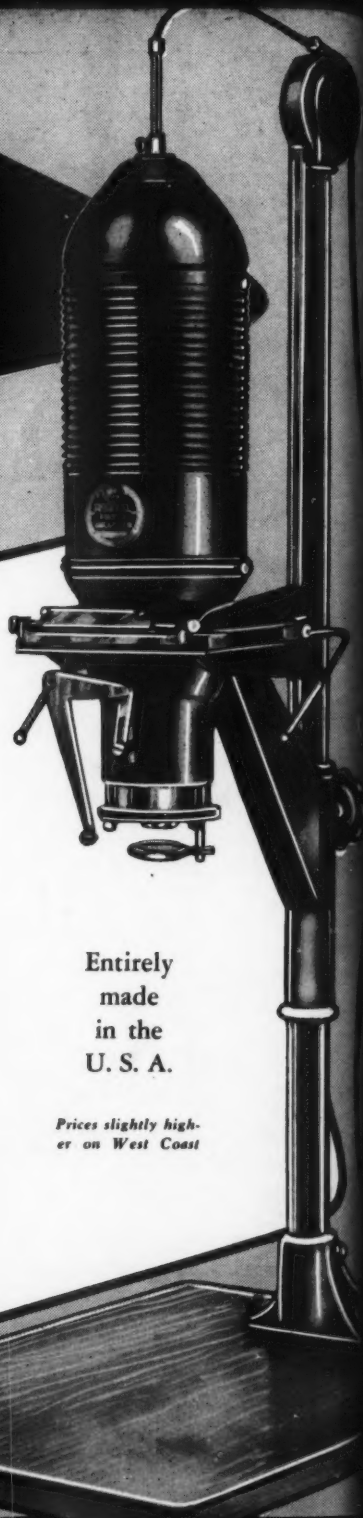
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